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ABSTRACT

As the third volume in a 4-volume evaluation report on the University of Massachusetts Non-Formal Education Project (UMass NFEP) initiated in rural Ecuador in 1973, this volume presents an in-depth analysis of the evaluation findings. Since UMass NFEP was initiated for purposes of developing new materials and methodologies in conjunction with and in support of existing Ecuadorian non-formal education programs, these findings are presented in terms of 13 basic evaluation questions relative to the following materials and methodologies: (1) the implementation process; (2) the degree to which project objectives were met; (3) the intent of the project; (4) the learning outcomes of educational games designed to promote numerical skills, literacy, and critical consciousness; (5) the characteristics of the more and less effective materials; (6) the characteristics of materials that worked well with learners of specific characteristics; (7) the facilitator/teacher variables; (8) the motivational attributes of each of the four games selected for in-depth experimental evaluation; (9) the change in attitudes and behaviors produced by each of the selected non-formal education games; (10) the importance of game sequencing factors; (11) the effect of replay frequency for each of the games; (12) the replication possibilities for the project; (13) the components for development of materials and programs in countries similar to Ecuador. (JC)

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# AN EVALUATION OF NON-FORMAL EDUCATION IN ECUADOR

## VOLUME III: FINDINGS

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
NATIONAL INSTITUTE OF EDUCATION

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## QUESTION 1: WHAT DOES THE UNIVERSITY OF MASSACHUSETTS NON-FORMAL EDUCATION PROJECT PURPORT TO DO?

After close to four years of activity in Ecuador, the University of Massachusetts' Non-Formal Education Project ("Proyecto de Educación Extra-Escolar") continues to defy definition. A multi-faceted undertaking, the project is not unlike the proverbial elephant: an entirely different beast for each of those who, through interest or association with it, draw close to touch it, feel it and describe it to others. Wishing the whole to reflect the part that has been their own experience with it, no two of the hundreds of Ecuadorians and North Americans--bureaucrats, educators, students, peasants--whose lives have been touched by this extraordinary project are able to agree completely on just what it is.

What is the Non-Formal Education Project? Is it a materials development center? A revolutionary delivery system for rural education? A catalyst for developing "critical consciousness" ("concientización") among Ecuadorian peasants? An arm of the Ministry of Education, or a free-wheeling, independent idea-generator? A deep personal commitment that goes beyond labels and boundaries?

The UMass project is to some extent all of the above, individually and together. To be able to understand these facets, however, and to draw from them conclusions that might be of some value to educational development in Latin America, they must be considered against the larger background of which they are but small parts: the Ecuadorian educational and socio-economic reality, and the stated objectives of the UMass Non-Formal Education Project.

We view, then, the Ecuador NFE (Non-Formal Education) project not as a static entity but rather as an on-going activity, reacting and responding to its particular milieu, its own activities and, in no small measure, to the people who give it form and direction. The project is what it does. But before considering what it does--itself the subject of differences of opinion even among NFE staff--we must first consider what the project purports to do.

Background and Origin. Ecuador is a small Andean country of some seven million inhabitants, over half of whom work in agriculture. This makes Ecuador one of the most heavily rural nations in Latin America. Though no longer completely dominated by the enormous haciendas, a legacy of Spanish domination, the rural areas continue to be plagued by traditional problems: too little land to support a rapidly expanding population; low levels of nutrition and sanitation; inadequate housing; high rates of infant morbidity and mortality; almost complete lack of access to basic public services; and, an educational system that enrolls less than half of the nation's rural primary-age children and graduates barely one-sixth of them out of a curriculum geared to urban needs and urban reality.

Educational statistics on rural Ecuador make for disturbing reading. Close to 30% of the nation's adult population is classified as "illiterate" (defined in some cases as functionally illiterate--i.e., unable to write one's own name or read simple sentences--and in other cases less than two years' formal schooling), but that figure is 55% in the rural areas (and even higher if rural women alone are considered). Five of every six primary schools are located in rural areas, but less than half of the country's primary teachers are stationed in these one- and two-room outposts.

Since 1972, Ecuador has been among those fortunate few nations that export petroleum. Government revenues have increased dramatically, as have the ambitious plans to transform the country through irrigation systems, roads, electricity, and schools. Spending for education now consumes a hefty 30% of the national budget, but much of that continues to go where most of the rest of the "oil boom" money has gone--to the cities. Worse, the flood of revenues has sparked an inflation (around 25% annually) that hits the peasant hardest of all. "Planting the petroleum" has become the government's slogan for its massive public works projects; for Ecuador's rural population, however, it has brought only a harvest of disillusionment and cynicism.

In the 1960's and early 1970's there was a re-awakening of interest in education as the foundation of any scheme to eliminate poverty. The interest was global--and munificent. Vast sums of money were marshalled by individual countries and by international organizations, all destined for classroom construction, textbook improvement, and large, but hasty programs of teacher preparation.

It became frustratingly apparent, though, that education was not the miraculous solution; illiteracy had not been wiped out, poverty had not been eliminated. Then came the reaction: "school is dead". Formal education was not only not the solution, it was part of the problem. The "revisionist" movement sprang up in many parts of the world at about the same time--the early 1970's. Its major thesis was that education, as an institutional manifestation of the controlling political-economic elites, was used to mold people to the elistist vision of the existing order. If they could not be taught to conform, they were rejected by the system and labeled "failures." The educational myth had become self-perpetuating.

Led in part by the flamboyant, stunning pronouncements of Ivan Illich (Celebration of Awareness (1970); Tools for Conviviality (1970); Deschooling Society (1971); and later by the quietly revolutionary literacy methods of Brazilian educator Paulo Freire (Pedagogy of the Oppressed (1970); Education for Critical Consciousness (1973); and numerous articles), educational thinking around the world turned towards "alternatives." In some cases this meant going outside the traditional system completely, in search of a radical, "liberating" kind of knowledge acquisition; in other cases it was merely the search for ways to improve the old system, to make it function more effectively. "Non-formal" education became the byword for . . . just about anything. There were as many definitions for it as there were interested parties, and a multiplicity of plans of action as well.

These concerns were shared at the AID office in Quito. A small group of people in the Agency's education division--among them Jon Gant, division head, and Patricio Barriga, a dynamic young Ecuadorian--saw that neither large-scale foreign aid programs nor enormously increased governmental budgets were having a noticeable effect on Ecuador's literacy problem, much less on rural poverty in general. AID saw the shortcoming as one of scope and content; the traditional school system did not reach people beyond the childhood years, nor did it transfer information that they would be able to use. In AID's view the type of information that was needed was developmental in nature; agricultural methods, nutrition, family planning. A non-traditional, cost-effective means would have to be found--or developed from scratch--to meet that need and thus accelerate the country's development.

The same breezes of educational change were waiting through the University of Massachusetts' Amherst campus. Many of the graduate students at its Center for International Education had begun to develop interests in educational gaming and started to link some of these ideas with Ivan Illich's writings on "learning networks" and Paulo Freire's on "concientizacao"- a literacy method based on the acquisition of "critical consciousness." One of these graduate students was William Smith.

Bill Smith had been a Peace Corps volunteer in Colombia, later going to Puerto Rico as an instructor in the Peace Corps' Latin American language and field training program. The program director, Jim Frits, traveled extensively through the Caribbean area, becoming familiar with the Peace Corps operations in most of the countries of the region. When the director of the Peace Corps in Honduras at that time, Jon Gant, needed a trainer for a motivation and language program for that country's Peace Corp volunteers, Frits recommended Smith.

In 1970, Bill Smith was a graduate student at the University of Massachusetts. While accompanying Dr. David Evans, professor in the University's School of Education, on a trip to Colombia to investigate non-formal education there, Smith called Quito, Ecuador, to say hello to his old friend Jon Gant--now in charge of the education division of AID/Ecuador. The UMass NFE team was invited to come to Quito to continue the conversation and to explore a little of the field of non-formal education in the Ecuadorian context.

These talks, and later discussions between Quito and Amherst, resulted in a 1971 UMass survey of education in Ecuador, sponsored by AID. Touching on education in general, the report quickly focused on existing non-formal

programs--their problems and needs. Different approaches were suggested for improving those programs, including suggestions on the use of new materials, comprehensive teacher training and the possible establishment of a materials-and-techniques dissemination center to support their efforts. It was agreed that there was a definite need in Ecuador for such improvements--and for further exploration--in the field of non-formal education. (Detailed in 'The Ecuador Project Technical Note #1, D. Evans, & Hoxeng; 1973).

A contract was signed between AID and UMass in late 1971, calling for UMass to:

1. create and field test a range of non-formal educational techniques using local institutions to implement and support these techniques in a field situation.
2. develop a number of non-formal educational methodologies which are feasible for use by existing Ecuadorian institutions.
3. implement selected methodologies with local institutions, including the Ministry of Education, with an on-going evaluation system designed to provide both current as well as terminal evidence of program impact.
4. make these methodologies available to other interested agencies and to provide support for their efforts.
5. devise and test training procedures to carry out these methodologies and in the use of the support materials.
6. provide technical assistance in non-formal education to the Ministry of Education, and to assist the Government of Ecuador and other Ecuadorian institutions develop non-formal education projects.

The UMass Project in Ecuador: Conception and First Year Activities.

The UMass NFE project would be, then, the kind of operation proposed in the 1971 survey--and more. It was to develop new materials and methodologies in conjunction with existing Ecuadorian non-formal education programs and to provide technical support for them. The project's activities would become

subordinate to the needs, scope, and ideology of the local institutions with whom they were to work. There was also considerable room left for independence, however; the NFE project was charged with developing and field testing its own methodologies for use by local programs or institutions. Thus, experimentation was encouraged without specific ties being attached to it.

Complete independence for UMass activities and directions was never considered; it was to be an innovative experimental project whose ultimate aim was to be the improvement of non-formal education in Ecuador. It was not to become a non-formal education project itself.

The UMass project, naturally enough, brought along its particular definition of "non-formal education." Based on skill and knowledge acquisition outside formalized learning situations, it was to be learner-centered--information that was directly useful to rural people in their village and daily lives. (Evans, Hoxeng; 1973. p. 4).

Only villagers themselves could truly know what their own needs were, so that goals should be set at the extremely local level--or even on an individual-by-individual basis. No set curriculum, ordered learning package or time frame would be possible since an individual's needs would change over time according to specific situations.

In terms of learning materials, UMass' view of non-formal education required the development of materials that were as flexible as the situations in which they would be used, yet necessarily effective in achieving a multiplicity of goals. They would have to be "attractive, self-motivating, and usable with relatively little outside input." (Evans, Hoxeng; 1973. p.5) This was not all. UMass Center for International Education saw learning as a profound process intimately linked with poverty and oppression in the rural

areas of the world. Education had to be more than just skill acquisition or the idle accumulation of knowldege. The term "relevant to rural reality" meant that "education" should enable people to critically perceive their situation, identify means of altering that situation, and work together with others to achieve those ends. It implied a root change in the traditional rural self-view as people of little worth and few capabilities.

The first materials developed by UMass to satisfy these complex, challenging goals were games. Drawing on their experience at Amherst, the project used ideas and already-developed games, adjusting them to Ecuadorian rural reality. (The conceptual origin, development and implementation of the UMass games are detailed in the project's Technical Notes 2-7, and in the Survey of Gaming Materials , by A. Ochoa, 1974.). To implement the games during the first year of the AID contract, UMass signed a "support" contract with CEMA (Centro de Motivación y Asesoría), an Ecuadorian training and consulting organization, to introduce the games into the rural communities where CEMA had just begun to experiment with the use of "facilitators" (residents of the local communities, trained by CEMA in motivational techniques) as para-professional rural community educators. But the facilitators were to act as more than just traditional educators; their training was geared toward the efficient and effective use of existing village resources and communication channels in order to accomplish locally-set goals (usually public works projects, such as electricity, water, and construction of community buildings). (Detailed in Informe Final de Proyecto de Educación No-Formal , CEMA, 1972.).

The facilitator model fit the UMass NFE specifications almost exactly:

locally-directed, self-motivating education that had no specific end point, but rather was part of a larger process of self-awareness and, ultimately, community action. UMass trained the facilitators in the use of the games it had developed, and when CEMA's contract with AID to run the program expired in early 1972, UMass continued to train them and to support their activities through periodic site visits and follow-up group seminars. (Detailed in A New Approach to Community Education , V. Ickis, 1972.)

The concept underlying the facilitator model had a profound effect on UMass personnel and on the direction the project was to take in the future. The games--really only one of several possible materials they could have begun with--had been an instant success; they attracted people and were apparently effective in teaching skills that were directly applicable to rural life. Moreover, it happened that their first introductory technique--village facilitators--appeared to be the perfect means of using the materials in their broader (i.e., critical consciousness, self-awareness) scope, as well as cost—effective when compared with traditional ways of teacher training and program implementation.

The first year of the project involved more than just the facilitators, however. New materials--usually games--were being developed and other dissemination vehicles were being tested: Ministry of Education adult night classes; use by the SEV (Servicio Ecuatoriano de Voluntarios--a kind of domestic Peace Corps), and a first try-out with radio programs and the fotonovela ( a kind of romantic or adventure comic book, using photographs instead of drawings) format. UMass was working well with existing Ecuadorian institutions as well as implementing experiments on their own. (See the Final Report, Feb. 1973, and Annex to Final Report, May 1973.)

The Second Year: Changing Focus.

The second year of UMass activity (1973-74) was funded by AID, again setting the same general goals as guided the first year. But there was not the innovation nor the willingness to experiment that marked that first year. The facilitator model had electrified the project staff; they were convinced that a truly revolutionary method had been found to educate and, more importantly, "liberate" rural adults. The team saw the facilitator model as completely self-directed and self-sustaining, and in doing so often overlooked their own very substantial inputs of ideas, and of time and money.

Attitudes towards formal educational institutions, especially the Ministry, began to harden in fact as well as concept; contacts were less frequent and often initiated by the Ministry rather than the project, despite their charge to work with and for existing programs. The introduction of materials into adult education centers in one province had, for a number of reasons, been less than successful; when compared with the facilitators, it looked even worse. Rather than develop other possible delivery systems or methodologies for use in semi-formal settings, however, UMass reduced its participation with the Ministry to a series of short, intense materials training seminars in several provinces.

Nor had there been much progress in other fields. A series of "second level" games were developed, intended for use or follow-ups to the first, more basic games; they were field tested but never used extensively. The fotonovela had been produced, but the radio program project had not left the planning stage; development and field testing were put off to the beginnings of the contract's third year.

Meanwhile, the facilitator model was expanded to a third area of the highlands and for the first time, to a rural zone on the Coast. (The year's activities are detailed in the Six Month Project Report , Oct. 1973, and Final Report 1973-74 , Mar. 1974.)

The UMass project this second year concentrated much more of its efforts on messages rather than fundamental (i.e., literacy, numeracy) education. As there was a reluctance to depend on the Ministry for outlets for its activities and a growing conviction that "non-formal education" was most importantly non-formal, the NFE project aimed at the utilization (or creation) of learning networks. The message the project was sending was that the peasants could learn for and from themselves; that they were people of worth who could achieve goals they set for themselves by working together. It was far from a call to revolution, but neither was it strictly the production of non-formal educational materials. A project such as the UMass NFE one has to be a subtle balance between: "turning people on to their own possibilities"; producing the materials that help them towards that goal; and, just as importantly, supporting people once they have been "turned on". The NFE project was deeply committed to the first, but not quite sure of where it was going with the second two.

The original contract with AID had also called for on-going evaluation of the project's different activities. A list of these evaluations (largely reports and case studies, with an occasional short-term testing mechanism) gives an idea of where UMass saw its greatest activity: the educational materials, the facilitator project, and, to much lesser degree, the teacher training seminars for the Ministry of Education. (The evaluation effort is discussed in detail in a following section.)

The Third Year: Where Now?

USAID/Ecuador agreed to a third year of funding for the Massachusetts project, which would carry it through to March 1975. The terms were much more stringent this time, and quickly brought out the differences of interpretation and emphasis that had been growing between AID Mission and the UMass NFE project. The Agency for International Development is a branch of the United States Department of State; wholly financed by annual Congressional appropriations, it exists overseas on a bilateral government-to-government basis. Its basic interest is institutional: cooperation with the government in the host country. The University of Massachusetts NFE project, like most independent organizations operating outside the United States, has an interest in maintaining good relations with the local government, but it is only one interest among many.

AID Mission had one view of the UMass project and it did not change at all in the three years of the project: the NFE project was to be a temporary, experimental program which would generate, test, and implement ideas and methodologies that could be incorporated into existing non-formal education projects in Ecuador. As such, there could be no long-term commitment to any particular aspect of the project, be it fotonovelas, facilitators, or teacher training; all were experiments whose future depended on their acceptance and adoption by local institutions.

This was accepted by the UMass project--on one level. There appeared to be, however, a disinclination to actually believe that the project would pass into the Ministry (or some other agency) or pass out of existence. The first alternative was too limiting, a contradiction in terms for a free-wheeling, innovative, non-formal education project; the second was inconceiv-

able, given the project's success and, especially, its deep personal commitment to the people in the rural areas with whom it had come in contact. The third-year contact would be the last, and specifically limited the project to a consolidation of all current activities. Developing any new programs during that year was ruled out.

There was a brief, intense search for alternative funding in early 1974, hoping to find a foundation (or combination of foundations and agencies) that would support the on-going facilitator model and, if possible, the other UMass NFE activities. None was forthcoming, and the project slowly began to adjust to the inevitable: if they were to continue at all, it would be under the aegis of the Ministry.

The last year of the project's independent stage (it passed into the Ministry of Education as a semi-autonomous office of the Ministry in April, 1975) was one of increased cooperation with the Ministry's on-going "non-formal" and Adult Education programs. SENARED, the Ministry's materials production center, took over production and distribution of all UMass games, and mixed UMass-Ministry training teams were involved in short teacher-training courses in most of the highland and coastal provinces. The fotonovelas had been printed and distributed, with a more limited (a definitely tamer) series later put out by SENARED. The radio programs were in the pilot testing stage and there was every indication that their format--para-professional instructors leading village discussion and learning groups--would be picked up on by the Ministry.

The future of the facilitator model is much less certain. There is the possibility that it will be brought into a decentralized non-formal education support system, wherein the facilitators are supported (at least in terms of

materials and training) by provincial resource centers as they continue to work in their communities. Most of the UMass field staff have moved with the project to the Ministry, reflecting their very real commitment to the program's activities if not its sponsor.

At the institutional level, then, both AID and the University of Massachusetts are in agreement as to what the latter's Non-Formal Education project purports to do: develop and field test, in conjunction with existing Ecuadorian institutions, a series of non-formal materials and methodologies, and to later support those institutions in their own non-formal programs.

The sharp differences of opinion that cropped up in 1973 and 1974 between AID and UMass were over interpretation and implementation of that charge. Caught up in the excitement of what was indeed a truly innovative field experience, UMass tended to downplay, if not denigrate, institutional ties. Their concerns were not only with present usage of materials (the educational materials themselves and the way and by whom they were being used) but also with long range concerns(the implications for profound changes in rural Ecuador). AID's concerns were equally focused, but on a different goal: contributing something useful to the improvement of education in Ecuador--and that means the Ministry of Education.

Interestingly, both UMass and AID agree that it was a combination of AID pressure ("suggestions in the conceptual area" as one AID staffer put it) and UMass field experience that brought the project around to thinking seriously about becoming part of the Ministry when its AID funding ended. Financing was the major determinant. AID was unwilling to continue funding an independent project, though it would finance much of the UMass project's expenses if it were part of the Ministry, and the NFE project realized that

even programs as highly motivated as was that of the facilitators needed a permanent source of support and follow-up.

As an office of the Ministry of Education, the Non-Formal project expects to pursue the same official goals that were outlined in the original 1971 funding contract. The scope of its work will be more limited, as will the opportunity to explore highly experimental non-formal models; the accent will be on consolidation and systemization of the games made to date.

## QUESTION 2: HOW DOES THE UMASS NON-FORMAL EDUCATION PROJECT GO ABOUT IMPLEMENTING ITS GOALS AND OBJECTIVES?

Once the 1971 contract between AID and UMass was signed outlining the latter's general area of activities in Ecuador, it was incumbent upon the NFE project to set goals for itself, and within these, specific objectives. A careful reading of the UMass project's many documents, especially those produced during the first year of project activity, shows that two major goals were set:

1) to create and develop a range of non-formal techniques and methodologies, and

2) to implement and support those techniques with and through local institutions.

Under the terms of the agreement with AID, the goals were not operationally separate but rather sequential and even simultaneous. New non-formal education techniques were to be created, and existing techniques developed and expanded upon, but always with the intention that they would be incorporated into the on-going non-formal education programs of Ecuadorian institutions.

The UMass project began with this in mind, but as their activities expanded and developed it became more difficult to define the terms used in the goals and to determine their operational order. The term "institution" was broad, covering formal organizations as well as learning or communication "networks"; certain "techniques" were networks in themselves. Some techniques were implemented without follow-up support while others were well-supported but lacked solid initial implementation.

Since the UMass non-formal education project was not, as we have

said, a fixed set of organized ideas and plans but rather a number of on-going activities, each affecting the others and each developing according to field experience, we will discuss the implementation of the project's goals in terms of those activities and the objectives that were set for each. No attempt is made to include all of the project's incredible array of activities, but rather those that shed light on how project goals were implemented in practice.

Educational Games. The use of games to teach or to simulate real-life activities in order to better deal with them has been common in the United States for a number of years. Prior to 1971 they were unknown in rural Ecuador. Since games were of great interest at the University of Massachusetts' School of Education in the early 1970's, they were the first techniques chosen for use in the NFE project.

The Center's working definition of "non-formal education" was a non-institutional, radically decentralized (to the point of complete control by each individual, if at all possible) knowledge-acquisition process whose fruits were immediately applicable to some felt need on the part of the learner. In selecting games as a technique, then, they opted for a special kind of game; it had to be educational and motivating, but simple enough for use among illiterates. In addition, the games were to be designed for use by rural people and not for use on them. Criteria were set out for the games in general; they were to be:

1) "attractive, self-motivating and useable with relatively little outside input."

2) relevant to the rural experience; the learning content must be applicable to the needs of the campesino.

3) open-ended, in order to be adaptable to individual needs and to get away from the notion of learning (especially literacy) as an end in itself.

4) self-explanatory and self-generating (i.e., the users would use them as a basis for further materials, designed by themselves, to meet other, more advanced needs).

5) a basis for a process of reflection and "conscientization" (critical consciousness).

6) cheap and easily reproduceable.

The criteria were designed to assure that each game would accomplish their two objectives:

1) the transfer of functional skills (literacy, numeracy) directly related to rural life.

2) the development of a state of "critical consciousness" (i.e., critical awareness of their reality and the possibilities for dealing with it effectively) in the individual participants.

Two types of games were planned to meet these objectives. One type would be "fluency"--games that emphasize a certain functional skill (i.e., literacy, numeracy). The other would be "simulation"--role playing that allowed people to "step out" of their daily lives in order to see their situation more objectively. Both types, however, were intended to meet <u>both</u> objectives (though not equally) if used properly.

The educational games were conceived and partially developed at UMass/Amherst through a process of soliciting ideas from anyone who was interested, and passing those ideas through a kind of review committee composed of UMass/Amherst personnel directly involved in the Ecuador non-formal project. Each idea was tested and modified against the set criteria; if it was felt to be feasible for use in Ecuador, it was sent down to Quito as a developed idea or sometimes in a partially-finished physical form.

In the project office in Quito the game ideas were reviewed again by the local staff, principally James Hoxeng, project administrator in Ecuador, and Patricio Barriga, who had left AID to become project director.

Adjustments to the specific conditions of rural Ecuador were made on some of the suggestions, and others were completely revamped or even rejected outright as unuseable. It was here that the games took on their nearly complete physical form; they would then be taken out to rural communities and played. But neither the shape nor the rules of the game would be fully elaborated, in order for campesino reactions and suggestions to be included in the process of adjustment. Field notes of these game sessions were kept by the project staff and formed the basis for final changes in concept, design, and rules. As the project became more involved with the facilitators, the suggestions and experiences of these trained leaders became another important input.

A "second generation" of both simulation (i.e., role playing) and fluency (i.e., skill-related) games were developed by the UMass project during its second year (see Six Month Project Report, October, 1973, pp. 14-17). Their stated objective was to build upon the skills--functional and motivational--developed in the "first generation" games, specifically among those individuals more advanced educationally. The same process of initial conceptualization at UMass/Amherst followed by adjustments and field testing in Ecuador was used to check the criteria against the objectives. Designed for use in the Ministry of Education Adult Education centers, they were never used extensively as the Ministry put them aside as a "low priority" item. ( Final Report, 1973-1974, p. 7).

UMass NFE documents give a picture of the various game materials continuing to evolve over time. This is not entirely accurate, however. Most of the games did go through an evolutionary process of a few months' duration before their final form was adopted and put into production,

but since then their physical aspect has remained virtually untouched. It is only in the rules for each game (especially the "fluency" ones), set by participants just before playing, that evolution continued to take place.

The criteria for the learning objective of the literacy and numeracy games could be implemented through careful design and subsequent field testing (the evaluation of this objective is discussed later in this section); but the criteria for the motivational (i.e., critical consciousness) objective could not be built into a game physically (rules, design, materials). This objective could be fully met only through the use of a process external to the game--that is, a method to be followed in playing the game. At the time that the games were conceived in Amherst, there did not exist such a process; rather, there was the unstated assumption that by making the games "open-ended" and "relevant," people by themselves would be able to conceptualize and then draw conclusions about their life situation after having played them. This assumption was never tested; through a fortunate circumstance, the UMass project found the ideal process for using the games as effective "critical consciousness" tools even before the games were implemented.

The Facilitator Model. One of the criteria set down for the non-formal educational games was that they be usable "with relatively little outside input." Neither the type nor the quantity of input was ever spelled out, but the use of non-professional manpower was implicit in the basic UMass project tenet that "people can learn from each other and that education doesn't necessarily require someone labeled 'teacher,'" (Evans, Hoxeng, 1973). It was implicit, too, in the project's desire to reach the educationally unserved part of the population with a functional education at

a minimal cost. What was needed, then, was a non-professional, low-cost means of spreading the games and using them in a way that would ensure that they would meet their educational and motivational objectives.

In late 1971, the Centro de Motivación y Asesoría (CEMA), an AID-funded research and training center in Quito, was given a contract to train a group of campesinos (rural dwellers) as "facilitators" (i.e., people who would act as community educational resources in their own villages) as part of a non-formal education project in two Sierra provinces. Emphasis in the training was on literacy programs that were development-oriented and horizontal (i.e., equality between the "teacher" and the "learner"). (Detailed in Ickis, 1972; and CEMA, 1972).

In January, 1972, the UMass project signed a contract with CEMA to train the facilitators in the use of the new educational games. It met the expressed desire of the facilitators for specific materials to use with their community groups, and it gave the UMass project an ideal vehicle for introduction and use of its games in rural villages. The facilitators were certainly non-professional and were relatively low-cost (they were paid for the training period and a small amount of a days-worked basis thereafter); more importantly, as campesinos themselves they could be trained in the motivational aspects of the project games and thus be expected to implement a "truer" process of critical consciousness than could be implemented by outsiders. The UMass project introduced Hacienda (the first simulation game) and several fluency games to the facilitators in the first months of 1972. When the CEMA non-formal education project contract was not funded for a second year, the UMass project stepped in to take over continued game introduction, facilitator training, and site visit follow-ups.

The facilitator model was tailor-made for UMass' philosophical outlook on non-formal education, and best of all it was (in their opinion) wildly successful. The model soon came to be seen by the project staff as the key component in their whole approach to non-formal education; the games, other materials and working with local institutions were all decidedly secondary. The facilitator program was intended to meet three objectives of non-formal education as conceived by the project:

1) improvement of basic social skills (i.e., literacy, numeracy) of the campesinos.

2) foster community development through an increase in the peasants' critical awareness of their own social reality and contradictions through increasing their sense of self esteem and efficacy.

3) the development of a viable system of non-professional, non-institutional manpower in the non-formal education field.

The facilitators as a group were at the same time a technique and a "communication network."

UMass project enthusiasm was such that a second facilitator group was "seeded" in the middle of 1973 in a heavily Indian (indígena), Quichua-speaking area of Chimborazo province. In late 1973 a third facilitator program was begun, this time on the Santa Elena peninsula of the coastal province of Guayas. In these two areas the UMass project worked alone, developing the program from the selection of the communities through to faciliator training and follow-up support visits. (Andrade, 1973; Alcocer, 1974).

The most important aspect of the implementation of the facilitator programs was the training of the facilitators themselves. Ostensibly aimed at ensuring that the first two facilitator objectives would be met

in practice, the UMass-conducted training sessions were in fact heavily weighted towards the second of those objectives: increasing the critical awareness of the campesinos. This was reflected in the emphasis on group dynamics and "survivial skills" (i.e., how to deal with authorities and bureaucracies), especially in the Colonche (Coast) training session; the actual manipulation of the games was downplayed.

The most common method employed by the UMass project training teams was the Ashton-Warner cum Paulo Freire literacy methodology called "dialogue" by the project; it involved the use of participant-chosen key words (concerning work, the home, family, etc.) that were then discussed in terms of their meaning in everyday life. The discussions, it was postulated, would allow the peasants to begin to see the objects and situations around them as forces that could be controlled, rather than invisible and untouchable. This would increase their self esteem, and ultimately lead to increased community self-development. For the UMass project, this was non-formal education in its fullest sense.

The problem became one of fulfilling the third facilitator model objective: development of the program into a viable alternative educational system. In the first year of its operation (1972 and early 1973), the model produced significant spin-offs; the facilitators from several communities organized training courses for other leaders of other communities, who were dubbed "second generation" facilitators. This led to a general belief in the project office that the model was virtually self-sustaining, and there was heady talk of third and fourth generations of facilitators. Overlooked were the serious problems some facilitator communities were facing: uncertainty of project goals--leading to a loss of interest; need for close follow-up and support; and lack of

adequate training in functional subjects demanded by community participants. Overlooked, too, were finances. The project supported training sessions but not the day-to-day work of the facilitators. The need to attend to their jobs often led facilitators to become inactive. AID was interested in the model only as it might be incorporated into an existing system; the idea of permanently motivated, non-paid facilitators was, according to one AID official, "the most naive idea I've ever heard." Nor was the Ministry of Education interested in taking over a group of non-professional teachers. As the project's third year drew to a close, UMass support of the facilitators continued to be one of group meetings to discuss problems and to introduce new materials and occasional site visits. The "revolutionary" concept in non-formal education could find no permanent sponsor, and appeared to end as it had begun: an experiment.

Radio Programs. The UMass project was also interested in the use of mass media as an existing communication network through which non-formal education messages could be transmitted. Their first contact was with Father Barriga, director of Radio Tabacundo, a privately run station just north of Quito that broadcast to an overwhelmingly rural listening audience. Much like educational radio stations in Colombia, on which it is based, Tabacundo broadcasts a mixture of educational programs and entertainment shows. Father Barriga was enthusiastic about the project's participation and readily agreed to cooperate.

The project intervention was to be a combination of the two major project goals: new techniques introduced into an existing "institution." UMass NFE wanted to test the use of tape cassette players as a means of increasing the effectiveness of a radio program's messages. Cassette players and a small supply of tapes would be distributed to some 30 of

the radio "school's" community listening groups. This would develop a two-way communications link between station and listener, as the peasants were urged to record their comments on existing programs or even to design and record their own programs for broadcast over the station. It was also hoped that the link would eventually become campesino-to-campesino, via the radio shows. The overall objectives of the radio-cassette experiment were three:

1) to heighten feelings of self worth and efficacy
2) to increase community development-related knowledge
3) to better the "classroom" performance of the participants

The first objective was based on a "groupness" premise: that increased awareness of group identity is crucial to individual growth in confidence (Hoxeng, Ickis, Ochoa; 1974). By facilitating communication about peasants by peasants themselves, a sense of group identity could be heightened. It would be solidified at the individual level by the great leeway allowed in the use of the cassette players. The listener-initiated programs could be on the topic(s) of their choice; they would get air time, and the tape machines would be under complete control of the listening group.

The second objective--developmental knowledge--was based on the Everett Rogers theory of the increased efficacy of broadcast messages when they are combined with interpersonal communication. If information on health, nutrition, or community improvements were backed up by inter-community exchange of ideas and experiences via radio, then there was a greater chance that the information would "take." The key was, again, the use of the tape cassette players.

Improved "classroom" performance (i.e., greater impact of the radio

school's literacy programs) was seen as another possible result of the tape players; it was hoped that they would serve both to maintain interest in the program and, more concretely, as learning aids for review and practice of broadcast lessons.

Project "profile" in the radio experiment was extremely low; the methodology was introduced and allowed to run its course. Training consisted of a one-day explanation of how the tape players functioned. Follow-up was indirect--monitoring the peasant-initiated programs for content. Unlike the NFE games, the radio-tape player project was implemented completely in Ecuador by and for an Ecuadorian audience, and it was worked in close conjunction with an existing Ecuadorian institution.

Other radio projects--short health and nutrition messages, radionovelas (dramas), educational shows--were planned for implementation during the project's third year, in order to test radio as a general delivery system (as opposed to Tabacundo's relatively stable listening audience). They had only just begun to be broadcast as the UMass project passed into the Ministry of Education.

Fotonovelas. The NFE project's second mass media experiment was the design and publication of a series of fotonovelas ("photo-novels"). Akin to comic books in format but using photographs instead of drawings and having as their major themes love, drama, and adventure, fotonovelas are an extremely popular form of literature throughout Latin America. Earlier, the AID mission in Ecuador had used a fotonovela design as an information dissemination device, but the results were unimpressive apparently because of its heavily didactic character.

The UMass project, however, saw promise in the concept, provided the fotonovelas were given a different, less educational focus. Like the

radio-cassette programs, the fotonovelas were to be a new non-formal technique applied through an existing communication network. But their primary objective was not the transfer of specific information; the fotonovelas were to be motivational in that they were to stimulate group discussions and "problem-posing" by their rural readership.

The story lines were to be written around a character who, it was hoped, would become a folk hero, and all the stories were to have as their themes incidents taken from Ecuadorian reality--familial and community authority patterns, land and water rights, community cooperation, etc. Although the story lines were written by project staff, they were then, for technical reasons, turned over to a professional publishing firm. The first fotonovela was printed in late 1972. Criticism of it as too paternalistic led to changes in later issues; they became much sharper in tone which in turn led to them being criticized as "radical." (It should be noted that all the stories received approval of the AID Mission in Quito.) In all, four fotonovelas were published through the end of 1973.

Distribution was another aspect of the fotonovelas that was to be explored. It was hoped that commercial systems such as traveling salesmen, bus routes, and corner stores, could be developed as outlets for the fotonovelas as well as other non-formal educational materials. To date, no such system or systems have proven successful, and distribution has largely been through market places or other institutions working in rural areas.

The fotonovelas had no built-in reader feedback system to gauge the extent to which their motivational objective was being met. Rather, judgment of their claimed "success" was based upon three factors: a one-time

75-person questionnaire sampling; a loose collection of impressions gathered in the field by project personnel; and by circulation figures. The Ministry of Education has since picked up on the idea and has developed, with UMass project assistance, two much more conservative story lines for use in the Adult Education centers around the country. As a technique, then, fotonovelas have proven to be feasible for non-formal education messages, but it remains to be seen if in that form they will be able to compete as a true mass medium.

The "Bibliobus." A fascinating mixture of traveling circus and mass media "happening," the bibliobus ("book bus"; taken from the Ministry of Education's small fleet of libraries-on-wheels, the bus was lent to the UMass project as a totally non-formal, experimental education center) was launched in February, 1974, as a three-week test of non-formal delivery systems. It was staffed by an 8-person team of project and Ministry of Education personnel who would take it to some 20 rural Sierra communities for one and two-day visits in each. The program was designed to stimulate the use of non-formal educational resources as well as attendance at the Ministry's Adult Education centers. Built around the message that "no one is too old to learn" and "learning has practical applications in daily life," a series of puppet shows, movies, rural theater (teatro campensino), fotonovelas, games, discussions, and reading materials were presented to crowds that often swelled to 400 people or more.

Reactions from the bus team were positive, and those of the rural communities were evident in the huge turn-outs. It appeared to be cost-effective when compared to other delivery systems (although the investment in manpower may not have been taken into account), but the real impact is open to doubt, as project personnel admit. The short time in each community and

the overwhelming popular response often reduced the bus stop to a show, a simple form of entertainment; the subtler messages about non-formal education couldn't be communicated under the circumstances.

Existing Institutions and Networks: Training in Non-Formal Methodologies.

Aside from the programs in which the UMass project had a large role in terms of conceptualization and implementation, the project was also active at a level once-removed from the rural peasant: training personnel from other institutions in the use of non-formal materials and methodologies. The utilization of existing "communication networks" was one of the project's general goals, as well as a response to Illich's call to break up the monopoly on learning that formal schooling tried to impose; advantage was to be taken of "a heterogeneous means of distribution" of knowledge.

The UMass project worked as a training and materials distribution team with a variety of Ecuadorian groups. It would be beyond the limits of this discussion to include each of those groups here; rather, we will discuss the major training "models" used by the project, with institutional examples for each. The similarity between cases lies in the strictly limited nature of project intervention; training was designed around the expressed needs of the institution requesting it, and subsequent use of the materials was left entirely to those institutions.

"Cafeteria." The most low-key approach to training was termed "the cafeteria approach," tried out during the first months of project activity. Numerous institutions (schools, social groups, clubs) were invited to the project offices to examine the materials and receive the briefest of instructions as to their manipulation; they could take with them those that

would be, in their own judgment, most useful. Designed to test this totally non-structured "on-demand" method as an effective distribution system, the "cafeteria" offered (methodologically speaking) a one course menu, as there was no project follow-up support and only periodic contacts to find out how the materials were being used.

Variations of this model were: a kind of "drop-and-run" model tried in Chota (games were played, unannounced, in one community one time and then left to see if they would generate any interest); and, a one-time impact in the Cachisagua Indian communities of Chimborazo province (a one-day introduction of game materials in the community themselves, with no follow-up support). None of these casual systems proved to be very promising as a reliable model and they were dropped after the first project year.

SEV. The Servicio Ecuatoriano de Voluntarios (a kind of domestic Peace Corps) requested training in the game materials for a group of 22 of its volunteers working in community development programs in rural villages in 1972. The session was short, and concentrated entirely on a small selection of simulation and fluency games. Later reports from the volunteers indicated that the games had been very well-received and "effective."

A more structured training program for SEV was designed the next year for use of the games and literacy methods in the Sayausí colegio campesino (a kind of rural technical high school) in southern Ecuador. Two SEV volunteers were trained and they, in turn, were in charge of training ten normalistas (recent teacher graduates to be sent to rural primary schools). The program was designed to test the colegio as a distribution and training system in that particular rural area, and the two volunteers received fol-

low-up support (more materials and training) as well as financial support from the UMass project. At the end of the experiment, indications were that the normalistas training had been too vague and that they lacked specific skills for dealing with rural problems.

The Military. Efforts were made by the project staff during 1972 and 1973 to interest the Ecuadorian army in the non-formal education materials for use with illiterate recruits. For reasons unclear to the project, their offer of both training and materials was met with an initial interest that later dissolved.

The Ministry of Education. The institution with which the UMass project has had the most difficulty in introducing its non-formal concepts has been not surprisingly, the Ministry of Education. The Ministry controls the system of schools that now reaches out to most rural villages in Ecuador and is the largest single communications network in the country. However, it is anything but non-formal.

Ironically, interest in the UMass project and in the idea of "non-formal" education has been very high in the Ministry over the last four years. But it is an interest in "non-formal methods" as they can be used by and in the existing formal education network (i.e., Adult Education centers). This could hardly be further from the UMass project's admonishment that it "must be remembered at all times that non-formal education is not simply an improvement in formal education, but at its basis a new form of education."

Nevertheless, there was a good deal of cooperation between the project and the Ministry in 1972. The project was interested in testing the Ministry's acceptance of non-formal education and in seeing how the formal system might

be used for non-formal materials delivery; the Ministry was interested in new ideas that would make their current programs more effective.

The first experiment was in the Los Rios province Adult Education centers. A UMass project team trained 40 adult educators in the Ashton-Warner literacy method and in a selection of educational games over a two-week period. Ten of the teachers were then given extra pay to devote full time (i.e., during the day too, since the adult classes meet at night) to community activities to see if there was any noticeable improvement when the methods were (it was hoped) used outside the classroom as well. There was no project follow-up and only limited monitoring during the school term. The results (i.e., interviews, observations) showed a great enthusiasm for the materials and methods, which ran counter to their observed use in rigid, traditional ways. Neither the two-week training nor the incentive pay had been effective in breaking the instructors' traditional teaching methods. The unimpressive showing disappointed the project and tended to reinforce their prejudice concerning the rigidity of the Ministry and formal education in general.

The following year (1973) another training program was mounted, again with Adult Center teachers, but this time in several provinces all over the country. A joint Ministry-UMass venture, two teams trained over 500 adult educators in several two-week sessions. The Ministry teams spent one week on the método psico-social (an off-shoot of the Freire literacy method designed by the Ministry) while the UMass project team spent the second week on the game materials and even some aspects of educational planning.

The disappointment on the part of the UMass project was evident.

Rural "facilitators' were to have been included, but few were contacted; there were severe problems in distributing the materials, a job taken over by a new Ministry office (SENARED - Servicio Nacional de Recursos Didácticos) in charge of materials production. The follow-up evaluation, a Ministry undertaking, was limited to two-day visits to each province to interview the teachers on their reactions and suggestions.

Working with the Ministry had again convinced many of the project personnel that despite growing AID insistence on cooperation with Ministry programs, especially in the up-coming last year of project activities, the Ministry was simply not an effective means of diffusing non-formal methodologies (let alone the philosophical concepts underlying them). The project remained firmly committed to its non-institution activities since "too great a dependence on the Ministry of Education limits the experimental nature of the project and would prevent the tests of alternative structures to reach much of the rural population." ( Six Month Report, Oct. 1973)

The project's frustration was reflected in the agreement signed with the Ministry for a third year of adult educator training sessions to be conducted in 1974. The UMass teams would conduct all phases of the two-week courses in the Coastal provinces, and the evaluation would be more structured as well as run by a joint Ministry-UMass project team.

The experience of working as non-formal educational trainers within a highly structured formal institution had been enlightening for the project and "successful" for the Ministry--but it had contradicted just about everything the UMass project hoped to accomplish in its use of existing networks. The scale was entirely out of proportion: small UMass teams trying to intro-

duce a new way of teaching, indeed a new way of looking at the student, to hundreds of adult educators with years of formal training and experience behind them. And the network itself, radiating out in ordered levels and rigid hierarchy from Quito to the smallest one-room schoolhouse, was simply not amenable to the kinds of changes in traditional education that the UMass project wished to effect, however much their educational games might be used.

It appears, then, that the UMass project's attempts to put itself in the role of a hands-off trainer of materials and methodologies was less than effective. This was the case for a variety of reasons. Use of the educational games in their fullest sense (i.e., consciousness-raising and not merely didactic toys) requires either an existing openness to non-formal methods in the teacher or intensive training to reach that state. The first is rare among teachers graduated out of traditional Ecuadorian educational programs and the latter is impossible in just two-week sessions with no follow-up. That the games were used by adult educators (much as textbooks would be used) is hardly surprising. The strictly materials-training segment of UMass project intervention was successful in arousing interest and promoting use of the materials.

When dealing with users who are untrained in either literacy or motivational methodologies, the training task is on the one hand eased because the trainee has no blocks to adopting the new techniques, and on the other hand made more difficult because the training must begin from scratch. The short-term training used with SEV volunteers and in the Cachisagua communities, and the "cafeteria" approach, were simply too short and too informal.

The other end of the training spectrum is seen in the two UMass project facilitator groups (Columbe and Colonche), where the emphasis was on motivational techniques. The facilitators were indeed motivated to act as community educational and developmental resources--but lacked training in the basic skills (literacy, numeracy) which the community participants demanded first.

In short, an effective training module for full use of the UMass project materials was never developed. The range of skills needed was too broad to be covered in two or even three and four weeks, while limits on project time and finances did not permit them to be any longer.

Materials Production. A strictly institution-to-institution arrangement was signed between the UMass project and the Ministry of Education in 1973 to transfer the production of educational materials to SENARED, a new Ministry umbrella office for textbooks and materials production and distribution. It involved no training but rather a series of low-key meetings to discuss, with SENARD, changes in the non-formal materials and the best means of distributing them. The objective was to begin the process of institutionalizing the UMass project experiments within existing Ecuadorian institutions. UMass tried to get SENARED involved in a few low-level projects that first year (such as co-production of the fotonovela series) but the new office was underfinanced and quite disorganized. An attempt was also made in 1973 to include rural community educators (facilitators and other non-professionals) in the proposed regional support centers SENARED was to set up in various provinces. The centers were to provide materials and continuing in-service training to teachers working in rural areas. The UMass proposal would have brought SENARED

into the non-formal field for the time, but its obligations to the formal system were at the time occupying all its efforts. Besides, the centers were simply not structured to give any kind of support that would be meaningful to a campesino educator.

By late 1973, SENARED was involved in the physical production of six of the UMass non-formal games, but distribution was still through the project or other organizations. Lack of money and general inexperience continued to hamper the operation. The following year, however, all the production and distribution was through SENARED.

Thus, production capabilities had indeed been successfully transferred to the Ministry, as had the distribution of the material. But the creation of new materials was another question. UMass documents indicate an active participation by SENARED at the conceptual stage ("co-design and adaptation") which is belied by a close look at what has been done since the Ministry office took over the materials production. The same UMass materials--especially the games--are being turned out, with SENARED limiting itself to very slight physical changes (size, color, etc.); the fotonovelas have been dropped and replaced by fotocuentos, a staid adaptation of the original format. Significantly, no new games have been generated by SENARED. Furthermore, the passing of the UMass project into the Ministry in April, 1975, seems to indicate that the project will continue to generate the ideas while SENARED merely puts them into a physical form.

Documentation and Evaluation. The documentation of UMass project activities is an on-going component of the project goal of implementing its materials and methodologies through local institutions. The documents, consisting of "technical notes," project reports, and work summaries, detailed case studies

of selected activities, and a few evaluation studies, are designed to order and analyze the experiences of the non-formal project during its three years in Ecuador so that the information is in a usable, understandable form. The technical notes have been published in both English and Spanish. Work summaries and reports are usually in English, as are the evaluations. Case studies are usually in Spanish as they were written in Ecuador by national staff members.

The technical notes are printed in series form by the UMass project. Each centers around a particular educational game or non-formal methodology (e.g., the Ashton-Warner literacy method, radio programs, "conscientization", etc.) and details its conception, design, applicability to Ecuadorian educational concerns, testing and field implementation. Though the documents tend to stray somewhat from strict objectivity, attributing profound effects of each material on the basis of casual observation and informal chats with rural participants, the technicial notes are very good at setting the materials in their intended scene with descriptions of villages, physical conditions, and participant characteristics.

Project work outlines and activity summaries are useful in several ways. They serve first as baselines, outlining the project's intended areas of work and concentration; the year-end reports are then a kind of "post test," indicating which goals were reached, how so, and the problems encountered along the way. They are usually quite detailed, and admirably optimistic. The researcher is able to trace the development and implementation of the project's many ideas over time, seeing the changes that occur in them due to circumstance, experience, and level of interest.

The area of documentation that is most deficient in terms of quantity is that of the case studies. It had been planned that each project activity would generate a detailed, comprehensive study, but this has been carried out only for the individual facilitator programs and for the Tabacundo radio programs. The case studies are detailed descriptions of activities--plans, processes, implementation, follow-up, and sometimes a ventured conclusion. They are strictly non-analytical. Within those limitations the studies are excellent sources of information and possible guidelines for non-formal education projects in Ecuador, since they discuss criteria for each step taken by the project and a wealth of methodological observations.

The fourth area of documentation has been termed "evaluation," which over the project's three years has included a number of information-gathering and analytical devices designed to test the "effectiveness" of project activities. The most common method for "evaluating" an activity (e.g., adult educator training, facilitator training) has been structured participant interviews and questionnaires. Unfortunately, the information that is gathered is usually very impressionistic and can rarely be used as the basis for future policy decisions. (Two exceptions are the short evaluative study of the Columbe facilitator program by Dr. Sylvia Forman, a UMass/Amherst anthropologist; directed as much to suggestions for future programs as to documenting the one under study, her report touches on all the basic factors of the facilitator program as it has been implemented in this area. The second is Albert Ochoa's exhaustive analysis of all in UMass games, published in 1974.)

Short-term testing has been a method used three times in the course of the project in an attempt to measure quantifiable results of the UMass non-

formal techniques. The first was in 1972, when over 100 participants in the original facilitator communities (i.e., those begun by CEMA and continued by UMass) were given a CAM-type (Comprehensive Achievement Monitoring) test on basic math skills. Given three times over six or seven months, the tests showed significant positive changes in those skills. The results were not conclusive, however, as high participant turn-over within the program made it impossible to accurately compare the first and last tests.

The second controlled testing experiment was with the Tabacundo radio school-tape cassette program. Picking up on an AID-sponsored questionnaire administered to the listening groups in 1971 (prior to UMass project intervention), the project repeated the questionnaire in 1972 and again in 1973 to measure changes in cognitive skills (reading, math) as well as the individual's perception of self, work, and community life (detailed in Hoxeng, Ickis, Ochoa; undated). The results indicated gains in the skill areas and a sharp change in participant perceptions; interestingly, the tape players did not appear to stimulate attendance.

The third testing technique was a "quasi-experimental" laboratory-type test; given to peasants who were exposed to two fluency games (number bingo and letter dice) for two hours, individual tests were then taken to measure short-term cognitive gain. The results were positive, but raised as many questions as they tried to answer (Alschuler, Andrade, & Bing, 1973).

The "evaluation" to date has been spotty. Bits and pieces of project activities are examined with less-than-optimum instruments, and the result is confusion or skepticism rather than clarification.

## QUESTION 3: TO WHAT EXTENT IS THE UMASS NFE PROJECT CARRYING OUT ITS INTENDED OBJECTIVES EFFECTIVELY?

The UMass communities considered in the impact study were selected in a systematic fashion. Of all the communities in Ecuador into which the UMass NFE project introduced the facilitator-games model, eight were selected for in-depth analyses. These eight communities, four in the Sierra and four on the Coast, were selected according to the criteria described in Chapter 2. A principal criterion employed was that they be among the communities considered to be the most "successful" in terms of UMass NFE impact.

The response to this question is divided into two major sections. The first section is a detailed descriptive analysis of the UMass NFE intervention in these eight communities. The data for this descriptive analysis was obtained in the following manner: (a) visits to the communities and in-depth individual interviews with the UMass NFE-trained facilitators as well as with other persons in each community; (b) completing for each community the UMass NFE-Impact Profile, an instrument developed for this purpose and described in Chapter 2; (c) a Community Profile Instrument also described in Chapter 2; and (d) administering individual tests of literacy, numerical skills, and critical consciousness to samples of villagers who had participated in the UMass NFE facilitator-led sessions.

The following portion of the response to this question focuses on a descriptive analysis of each of the eight communities. The emphasis here is on the facilitators and the UMass-developed games, and especially on how they function as two components of a nonformal education model in

rural communities. These are the two activities with which the UMass project began its work in Ecuador and in which they had continued over the entire three years of the project. Further, the facilitators and the games have been among the most captivating, controversial, and interest-arousing activities for both the UMass project staff and for outside observers. Most importantly for the purposes of this study, it is in the facilitators and the nonformal games, especially when considered together, that many of the basic philosophical concerns of the University of Massachusetts towards nonformal education are translated into specific learning and attitudinal objectives. We intend here to look more closely at the procedures that were followed by the UMass project to implement the facilitators-games model in order to identify those factors--personal, economic, cultural, institutional--which had a significant impact on the realization of the objectives the project had set for those two components.

As we will remember from a previous discussion (Evaluation Question 2), the objectives of the educational games were:

1. to transfer to their users functional skills (literacy, numeracy) directly related to rural life
2. to develop in the individual participant a state of "critical consciousness"

The objectives of the facilitator model were:

1. to aid in the improvement of basic social skills (literacy, numeracy) of the peasant
2. to foster community development through an increase in the peasants' critical awareness of their reality
3. to develop a viable system of nonprofessional manpower for use in the nonformal education field

Together the facilitators and the games were intended to test certain learning materials, their use and effectiveness under certain conditions, and a reliable nonformal delivery system for them.

The eight rural communities chosen by the UCLA evaluation for further study of the impact of the UMass project nonformal model can be divided into three groups. They represent the spectrum of institutional and ecological conditions under which the UMass project experimented with the model. The first set of communities--Puñachísac and Tutupala--is in the Sierra; here the facilitators had been selected and trained by CEMA in 1971, with UMass intervention following. The second group--Baldalupaxí and San Martín--is also in the Sierra, but in a heavily indigenous (Indian) area. Here it was in 1973 that the UMass project alone introduced both the facilitator model and the educational games. The third group of communities--Colonche, Valdivia, San Pedro, Sinchal--is in the coastal province of Guayas. They were among the last set of rural communities into which the UMass project, again working alone, introduced the facilitator-games concept.

At the time of our evaluation--between February and April of 1975--it had been just over three years since initial UMass impact in the first set of Sierra communities, a little less than two years in the second set of Sierra villages, and about a year and a half in the Coastal communities.

Our discussion here will first revolve around each of the three groups of communities, a socioeconomic sketch of each, followed by a description of the implementation of the nonformal model in that area. The analysis of the effectiveness of this implementation in terms of the intended objectives of the program will cover the entire set of eight

communities, and will focus on the general factors from which we can draw conclusions.

Table III.3.1 presents the demographic characteristics of each of the eight UMass NFE project-impacted communities selected for in-depth analysis.

Table III.3.2 presents the data from the UMass NFE Impact Profile, for each of the eight communities.

Table III.3.3. presents the results of individual interviews with villagers who had participated in UMass NFE facilitator sessions. These are summary statistics.

Table III.3.1

Selected UMass-Impacted Communities Demographic Profile

| Communities | Population | Principal Occupation | Ethnic Composition | Language Spoken | Electricity | Potable Water | Public Health Services | No. Adult Literates (est.) | No. Adult Illiterates (est.) | No. Radios (est.) | No. Television Sets (est.) | No. Means of Transportation Used | No. Outside Agencies in Community |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Coast | | | | | | | | | | | | | |
| Colonche | 600 | Ag | M | S | Yes | No | Yes | 500 | 10 | 100 | 4 | 5 | 2 |
| San Pedro | 1,944 | F | M | S | No | No | Yes | (NA) | (NA) | 300 | 0 | 6 | 3 |
| Valdivia | 1,649 | Ag | M | S | No | No | Yes | 300 | 800 | 150 | 1 | 6 | 4 |
| Sinchal | 1,416 | Ag | M | S | No | No | No | 1,000 | 20 | 140 | 0 | 6 | 2 |
| Sierra | | | | | | | | | | | | | |
| Puñachísac | 1,200 | Ag | M=I | S | No | No | Yes | 600 | 200 | 200 | 0 | 6 | 7 |
| Tutupala | 300 | Ag | M>I | S | No | No | No | (NA) | (NA) | 70 | 0 | 5 | 2 |
| San Martín | 600 | Ag | I | S=Q | No | No | No | 380 | 100 | 70 | 0 | 5 | 2 |
| Baldalupaxí | 300 | Ag | I | Q>S | No | No | No | 50 | 200 | 20 | 0 | 3 | 2 |

NOTES: Occupation
Ag = Agriculture, F = Fishing

Ethnic Composition
M = Mestizo (physical features, dress, customs), I = Indian (physical features, dress, customs)

Language
S = Spanish, Q = Quichua

Relations
= in equal proportion, > more than

Table III.3.2

Profile of UMass Project Impact
Eight Selected Communities
(to December, 1974)

| Community | No. of Trained Facilitators | No. of Active Facilitators (at any time) | Reimbursed for Work in Communities? | Selection Process | Max. No. Regular Participants in Community | Simulation Games: No. Times Used | | Fluency Games: No. Times Used | | | | | | No. of Fotonovelas Introduced |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Hacienda | Others | Syllable Dice | Syllable Cards | Number Dice | Number Bingo | Mercado | Others | |
| Puñachísac | 4 | 4 | Yes | E | 45 | 40 | 0 | 20 | 10 | 20 | 4 | 20 | 20 | 120 |
| Tutupala | 4 | 2 | Yes | E | 35 | 25 | 0 | 40 | 20 | 40 | 20 | 10 | 33 | 120 |
| San Martín | 6 | 1 | No | E,F | 9 | 4 | 0 | 0 | 0 | 8 | 0 | 4 | 0 | 0 |
| Baldalupaxí | 5 | 1 | No | E,F | 0[3] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Colonche | 3 | 2 | No | ON,F | 0[1] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 10 |
| San Pedro | 8 | 2 | No | ON,F | 13 | 0 | 0 | 5 | 5 | 7 | 0 | 5 | 0 | 0 |
| Sinchal | 4 | 1 | No | ON,F | 0[2] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Valdivia | 3 | 0 | No | ON,F | 0[3] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

Selection Process: V = Volunteer, E = Elected, N = Named by community organization, ON = Named by outside organization, F = Friendship with facilitator

Notes: [1]Colonche - games played only in one club; never by community group formed by Project facilitators
[2]Sinchal - games first played in 1975
[3]Baldalupaxí, Valdivia - one or more games played by facilitators and friends; no community group formed around games by Project facilitators

Table III.3.3

UMass Project-Impacted Communities:
Participant Perceptions (to April, 1975)

| Community | No. of Participants Interviewed | Total No. UMass Games Recalled by Participants | Range of Times UMass Game(s) Used by Interviewees | UMass Game(s) Liked Best | UMass Game(s) Liked Least | Games Aided in Personal Development? | Games Aided in Strengthening of Family? | Games Aided in Personal Socio-economic Development? | Games Aided Community as a Whole? | Games Aided in Relevant Learning? |
|---|---|---|---|---|---|---|---|---|---|---|
| Puñachísac | 8 | 6 | 1-60 | H,M | none | somewhat | little | little | little | little |
| Tutupala | 7 | 5 | 10-50 | H | SD | little | little | little | little | little |
| San Martín | 8 | 4 | 2-6 | H,M | none | little | little | very little | little | little |
| Baldalupaxí | * | - | - | - | -- | -- | -- | -- | -- | -- |
| Colonche | 8 | 6 | 3-10 | M,SD | SD | somewhat | little | little | little | somewhat |
| San Pedro | 8 | 6 | 3-60 | H | none | somewhat | little | very little | very little | little |
| Sinchal | 6 | 4 | 1-4 | H | none | very much | little | somewhat | somewhat | little |
| Valdivia | * | - | - | - | -- | -- | -- | -- | -- | -- |

Game Codes: H = Hacienda, M = Mercado, SD = Syllable Dice

*No group ever formed around games by Project facilitators.

Sierra: Puñachísac and Tutupala

Puñachísac (see Table III.3.1) is a widely dispersed agricultural community of some 1,200 inhabitants, located 25 kilometers south of Ambato, the provincial capital of Tungurahua province. Evenly divided between Indians and mestizos, the community is nominally Catholic and speaks Spanish only. The land is fertile and well watered, allowing for a great variety of products to be sold in the area's weekly markets. Though still lacking electricity and potable water, Puñachísac is more prosperous and progressive than other neighboring villages; its sound economic base and relatively unified population supports a number of active local-improvement organizations, as well as the activities of at least seven outside agencies (SEV, CEMA, CESA, several Ministries, etc.).

In sharp economic contrast is Tutupala (see Table III.3.1), a community of over 300 mestizo small farmers in Chimborazo province. The land here is extremely dry, and products are limited to corn and hay. The latter is consumed entirely within the community by each family's small animals--chickens, sheep, rabbits, guinea pigs. It is the sale in the local markets of these animals, plus the activities of farmers who have turned to part-time tailoring, that provide the bulk of Tutupala's income. It is a poor, isolated village with one major strength: its people. They are united and active, working with a group of excellent community leaders, for the betterment of Tutupala.

UMass project impact. Four facilitators were selected in 1971 from both of the two communities through a process of election and appointment by the community leaders. Together with facilitators from five other Sierra villages they attended a five-week training session run by CEMA

in late 1971. The training concentrated on the skills they would need as community "resource persons": conscientization methods, literacy methods, working with bureaucracies, planning, etc. In later interviews with the facilitators, they remembered that Patricio Barriga and Enrique Tasiguano from the UMass project staff had come one day to teach them "the game of life" (Hacienda).

All eight of the facilitators from Puñachísac and Tutupala were small farmers (two from Tutupala were also tailors) and males; those from Puñachísac tended to be slightly better off economically than the average in their community, while those from Tutupala were about average. All the Tutupala facilitators had completed primary school, while only two of the four Puñachísac group had. The Puñachísac facilitators on the whole were somewhat older than their Tutupala counterparts, but the latter were more active in community affairs prior to the training. All the facilitators were paid by CEMA for the time spent in training, plus s/10 (approximately 25 U.S. cents) for each day they worked in their communities. This compensation amounted to s/4,000 ($160 U.S.) for each facilitator during the year that CEMA was in charge of the program.

In both communities the facilitators began nonformal literacy classes right after their training. Usually held between four and five evenings each week over the course of several months, and somewhat less frequently thereafter, the sessions were well attended, drawing between 35 and 50 adults (though rarely the same ones) each time. After a short time, the facilitators began to feel that more specific literacy materials were needed, and CEMA contracted with the UMass project for the introduction of several literacy and numerical games (Syllable Dice, Number Dice, Mercado, etc.) in early 1972. The facilitators were given short

training courses in their use and took them back to the communities, where they were played regularly (see Table III.3.2).

Direct intervention in the communities by UMass and CEMA during this time was limited to occasional site visits by a field coordinator; Tutupala and Puñachísac were the two communities of the seven total which received the greatest attention from the two organizations, partly because of their physical accessibility and in part because of the level of activity there sustained by the facilitators.

In this first year the existence of the literacy project was known to everyone in Tutupala and by most people in Puñachísac. Interestingly, in neither community were any participants but the facilitators and their close associates clear as to the difference between UMass and CEMA staffs; most people still regard them as being from the same organization.

In neither community was there a problem of acceptance by the people for the facilitators and the nonformal program. Few if any of the people at the time were clear as to the program's origins and ultimate goals, but they did find the classes interesting and directly useful in their daily lives. Observers from the community itself and from outside organizations indicate that the sessions were well run and that the participant groups were able to reflect on their experiences much as had been intended by the designers of the program.

In Puñachísac two problems surfaced in the course of the project. First, there were conflicts between certain of the facilitators. On the one hand, they were carry-overs from longstanding differences over land and money, but there was also resentment towards one of the facilitators because of his increasing activities with the CEMA/UMass project outside the community. He traveled frequently to Quito and to other rural

communities, attending seminars and organizing other groups. The feeling developed that he had abandoned Puñachísac.

Secondly, there was a general resentment towards the four facilitators on the part of the community when it was found out that they were being paid for their work in Puñachísac. It was felt that they were using the participants in order to make money for themselves.

In Tutupala neither of these problems occurred.

After one year the CEMA contract expired and financial reimbursement to the facilitators ended. The UMass project then took over direction of the facilitator program, but at a much lower level of direct support than had been the case with CEMA. New games and materials continued to be introduced; besides Hacienda and the first fluency games (Number Bingo, Syllable Dice, Syllable Cards), four new fluency games and over 100 copies of the fotonovelas were also brought to Puñachísac and Tutupala. Frequent site visits by UMass personnel (over 40 to Tutupala and more than 50 to Puñachísac) were made over the next two years, as well as several all-facilitator meetings held to discuss problems and methods.

But events within the two communities, as well as financial considerations, acted to end the nonformal program's educational activities almost as soon as the CEMA contract ended. The facilitators, acting as individuals and together in each village, promoted a number of community projects that effectively put to use the skills they had learned in the training session. In Tutupala a forestry cooperative was begun; in Puñachísac, the facilitators organized a community census which formed the basis for the solicitation of a medical post (later installed), and they began the paper work for the installation of electricity (as yet not obtained).

The lack of direct financial support, however, led to the facilitators' loss of interest in the literacy classes; in Tutupala especially they had to give their first attention to the economic sustenance of their families. In both communities there was also the inability of the facilitators and their UMass-supplied materials to keep pace with the learning demands of the participants. The people enjoyed the reflection and discussion, but asked for more complex, challenging materials. At times the facilitators would have to fall back on standard textbooks in reading or arithmetic, which they applied within a traditional teacher-student framework. Lacking the necessary training in nonformal approaches to all kinds of situations, the facilitators reverted to methods with which they were more familiar.

In Puñachísac, a teacher from the Ministry of Education's Adult Education program was brought by popular request in 1973, and the nonformal sessions have not been held except very sporadically since then. The games and nonformal materials continue to be stored in the schoolhouse, where they are occasionally used by the adult educator in a formal, nonreflective way. Other games are in the homes of individual facilitators. In Tutupala the nonformal sessions ended completely by early 1973.

Interest in the facilitator model as such remained high, however, in Tutupala and with at least one of the Puñachísac facilitators. In Tutupala the facilitators sought and obtained the financial support of the UMass project for a facilitator-designed training session for "second generation" facilitators (i.e., selected from nonimpacted surrounding communities). Direct UMass participation was limited to observation of the training and the supplying of the games to the new group. Another such training period was held in Quero by several of the Puñachísac

facilitators, with the same low profile maintained by the UMass project. Interestingly, the training session specifically excluded pay for the second generation facilitators' work in their communities, and put the responsibility for follow-support (i.e., visits and retraining) in the hands of the original facilitators. The Tutupala-trained second generation later organized a third generation of facilitators, which worked with the UMass project in the development and presentation of teatro campesino (peasant theater) in various parts of the country.

At the time of the ULCA study of these communities, it had been almost two years since the nonformal games had been played in any systematic fashion in either Tutupala or Puñachísac. The 15 people we interviewed who had participated in the literacy/reflection classes remembered them as interesting, enjoyable and "useful" (though they couldn't remember in just what way) on an individual basis, with the program as such given little credit for any community improvements (see Table III.3.3).

The facilitators in both places still identified themselves as such, even though their educational activities had ceased, and with one exception they had had little recent contact with the UMass project. On the whole they felt the games had been quite beneficial to the participants educationally and in terms of developing signs of critical consciousness. Likewise, they gave credit to the UMass project for its support in obtaining community improvements (i.e., helping with paper work and bureaucratic maneuvering). All the facilitators agreed that payments for their kind of work are a potential hazard if mishandled, but are of absolute necessity if such a program is to be based on the work of community residents.

Two and three years after the program had begun, we found in interviewing the facilitators that there lingered a certain confusion as to its ultimate goals and their own part in reaching them. The nonformal methods and how they should be applied with certain materials were clear enough, as were the intended short-term results that might be expected in individual participants. But after that? The concept of a vague or nonexistent end-point of nonformal education as it is conceived by the UMass project was not successfully.transferred to the facilitators who live and work in a day-to-day situation where activity indicates existence. When the game-playing literacy classes stopped, so did the project as such for the facilitators, whatever its impact on individuals may have been. The facilitators are not sure now what it was all about, or why.

Sierra: San Martín and Baldalupa.í

A largely indigenous (Indian) community of over 400 inhabitants, San Martín (see Table III.3.1) supports itself through the sale of its agricultural products--barley, hay, and wheat. As is the case in most communities of the Colta-Columbe region of Chimborazo province, Quichua is the language of the home in San Martín, with Spanish also spoken by the children in the village's primary school and by those residents who deal extensively in the region's several weekly markets. Like other villages in this area, San Martín has been affected by an influx of Protestant missionaries over the past 15 years and is now overwhelmingly Adventist. Relations between the Catholic minority and newly-converted Protestants are poor. San Martín is relatively isolated, connected to the outside principally by a narrow dirt road leading down the hill a few kilometers to an unpaved stretch of the Panamerican Highway, and by

some few radios. Illiteracy is high, and there is no internal demand for newspapers or magazines. It is also poor; there is no electricity, potable water, or health service. The most serious problem faced by San Martín is the lack of land. Surrounded by a hacienda of which it once formed a part, the community's farmers have no way to expand their fields to meet the needs of the rising birth rate; many of the village's youth and young adults are forced to leave to find work elsewhere.

Only a few kilometers separate San Martín from Baldalupaxí, a community of 300 people similar to their neighbors in many ways (see Table III.3.1). The village's Catholic, Quichua-speaking farmers are confronted with too little land from which to make an adequate living and a resultant emigration that drains the community of its most productive members. Raising sheep and spinning their wool helps offset the generally low prices received for the village's major crops, potatoes and wheat. Recently, CESA, a cooperative formation and lending organization, has been active in the formation of a local "agricultural association." Aside from that and the small primary school, Baldalupaxí has few links to the outside world; its largely illiterate population has no access to newspapers, with 20 radios the only form of communication. Electricity and potable water are distant dreams, nor is there any kind of health service closer than 20 miles away.

UMass project impact. In early 1973, the UMass project decided to organize a facilitator program on its own, this time in a Quichua-speaking area of the highlands in order to test the feasibility of this model in non-mestizo areas of Ecuador. Under the direction of Carlos Moreno, who had just joined the project SEV and knew the Columbe area and many of its leaders from his previous work, nine impact communities

were selected. To the extent possible, they were chosen according to a list of preestablished socioeconomic criteria. But in practice it was Moreno's personal contacts and the communities with which the contacts were familiar that were the deciding factors. This led to the stretching of several of the original criteria; for example, not all the communities were close to one another, illiteracy was not considered a problem in all of them, several were characterized by bitter religious differences and at least one was closer to being a small town than a rural village.

Facilitators were selected by the communities themselves in general meetings where Moreno would first explain the project's goals and intended activities. Sometimes the selection was by election, other times by "suggestion" of the village leaders or councils. There were 29 facilitators who attended the two-week training session in Colta Monjas; five of these were from Baldalupaxí and six from San Martín.

Of the eleven trainees from the two communities we studied, only two--Francisco Coro of Baldalupaxí and Rafael Yautibug of San Martín--were leaders of their communities prior to UMass intervention. The same two had also attended various seminars and training courses through CESA and the Diocese of Riobamba previously. Both are Protestants. The other facilitators from Baldalupaxí and San Martín apparently attended because they were invited and because it was an interesting way to pass the time; only one other of these was active in the UMass program subsequent to the training.

Three of the eleven from these two communities were young women; marriage in one case and household duties in the other two prevented them from working in the communities as facilitators. All the men were farmers but, typical of their communities, two are now working on the

Coast. Most of the trainees had completed the three years of primary school that had been set by the project as a minimum for training (Coro and Yatibug had completed all six years), but at least one was illiterate.

The training was conducted in Quichua and concentrated on group activities and motivational skills that could be used in working "for change in the community"; relatively little time was dedicated to the nonformal educational games and literacy methods. Several of the facilitators we interviewed recalled that part of the sessions had to do with the Paulo Freire "dialogue" method; others recalled some of the specific games (especially Hacienda) that had been introduced. The objectives and limitations of the UMass project were made quite clear; the facilitators remembered that the project's aim was that "the campesinos think and draw some new ideas to meet the needs of the community." But two of the interviewed facilitators said that they left the training without really knowing how to do what they had been talking about in Colta Monjas. The UMass project reimbursed the trainees for time lost during the full-time training session, but actual work in their communities was to be voluntary.

In San Martín, Rafael Yautibug immediately organized a literacy center that functioned two or three days a week for close to three months. Attendance was low (between six and 12 participants), however, and eventually a Ministry adult educator was brought in. Yautibug continued to assist her with the first-year students, seven of whom attended regularly, but he later left the literacy group entirely. Hacienda, Mercado, and Syllable Dice were used less than 10 times in the nonformal classes in San Martín (Yautibug had "lost" the materials given him during the training; they were not replaced until January, 1974), and were not used at all by the adult educator. Those people who had

participated in both the nonformal classes and the adult center clearly saw the difference between Yautibug and the teacher: "The señorita only teaches letters, and never brings the good ideas for the community like Rafael." The eight participants we interviewed remembered the games as fun, but indicated that they had actually learned very little from them (see Table III.3.3).

Several projects were organized in San Martín after the facilitators had returned from training--a communal store, a cement block "factory"--but these were part of the activities of the Agricultural Association sponsored by CESA. Likewise, the regional sales cooperative in which Yautibug and facilitator Francisco Coro of Baldalupaxí are still active was an outgrowth of their previous experiences with agricultural cooperatives rather than their UMass training.

In Baldalupaxí the UMass project has had virtually no impact outside the original group of facilitators, and even there it is minimal in several cases. The most active community leader, Francisco Coro, made no effort to organize a literacy group when he returned from the facilitator training. This is a reflection of the man's caution towards compromising himself too deeply with outside organizations. Of the UMass project, he says, "It's interesting, but I made no agreement with them. One never knows. I enjoy conversing with the representatives of the University of Massachusetts as people outside their institution, but when it has to do with the institution I have little confidence." It was not until over a year later (October 1974) that one of the other facilitators, Lorenzo Pasa, organized a group of between six and eight people for literacy classes; they met for almost two months, then disbanded. Hacienda was played at least twice, but standard literacy texts and methods were the

rule. Pasa felt inadequate for the task, but recognized the overwhelming need for a literate population in Baldalupaxí if the community was ever to organize itself. He is now trying to obtain an adult teacher to give classes on a full-time basis.

Both "active" facilitators in Baldalupaxí said that they have used Hacienda several times, but no one else in the community remembers ever having played this or any other UMass project game. (We were unable to apply the pretest measurement here because of this.) Nor were there any community development projects that could be directly traced to the influence of the UMass training session or program (see Tables III.3 2 and 3).

In neither San Martín nor Baldalupaxí had there been any real effort on the part of the facilitators to publicize the project or its goals. The extremely few people who have had at least passing contact with the games identify them with the individual facilitators who introduced them; outside of the facilitators themselves there is no consciousness of the broad utility of the games, much less the goals of the UMass project.

Site visits by project staff have been regular, though not as numerous as those made to the communities of Puñachísac and Tutupala; Carlos Moreno had been to San Martín some 10 times over the course of the first year, as the facilitators could best recall. The active facilitators from the entire Colta-Columbe area are included in general facilitator meetings called by the UMass project, where new materials are introduced. Little of this activity has filtered down to the level

of the community participants, however. At the time of our study, the UMass project as a functioning activity in San Martín and Baldalupaxí, had ceased to exist for almost a year.

Coast: Colonche, San Pedro, Valdivia, Sinchal

Colonche's 800 inhabitants, all of them Catholic, Spanish-speaking Coastal mestizos, scratch out a living from dry-land agriculture in an area notable for its droughts (see Table III.3.1). The community is the administrative center for the parish of the same name, and as such has the appearance of a very small town rather than a village. A huge wooden church, well over 100 years old, dominates the entire landscape. The individual dwellings, mostly of the raised wood-frame or split-cane construction typical on the Coast, cluster around the wide plaza and its small enclosed park. The only cement block building houses the health post, the office of the teniente político (area political chief), the civil registry and the parish offices. Communication between Colonche and the outside world is varied; several daily buses connect with others that go on to Guayaquil, 100 miles to the east, and at least one daily newspaper from Guayaquil is sold regularly. Since there is electricity, radio is standard and there are four television sets. There are a number of local organizations ("cultural club", 4-H, volunteer firemen, sports, etc.) but very few of Colonche's inhabitants are involved in their activities--perhaps as few as 7%. It is the eternal problem of earning a living from land that is too poor that forces people to concentrate on economic survival first and social activities second.

San Pedro (see Table III.3.1) presents a very different picture--at least superficially. Astride the main paved road of the Santa Elena

peninsula, the village's main street is a continuous parade of buses, trucks, small pick-ups, a few private cars from outside the community and numerous water tankers carrying fresh water up and down the peninsula. The traffic and the series of small stores, family-run restaurants, fish stands and bars along the road give San Pedro an air of great activity and prosperity. Off the road, however, are the raised split-cane houses packed tightly together along the dirt streets, and the lack of electricity, water, sanitation and health services becomes more apparent. The great majority of San Pedro's 2,000 inhabitants live by fishing; but very few own their own boats, and are thus dependent not only on nature but the good will of the shipowners for their income. Agriculture supports a few families, but the fields are several kilometers away. In general, there is a high level of subemployment reflected in the knots of young men who gather along the main street daily to read comic books, play billiards or just talk. Young women are kept at home.

The most influential organization by far is the Catholic church. Its parish house at one end of San Pedro has a small health dispensary and a carpentry shop, and is the center for the distribution of donated food and clothes. The two priests who work there, both Spaniards, also organize "leadership" and "community development" courses in the surrounding communities.

The parish house sits between San Pedro and Valdivia, two communities divided by the paved road and their economic base. Valdivia (see Table III.3.1), too, is on the ocean but it lives by agriculture, with small commerce, shoe assembling and day labor in canning factories absorbing perhaps a third of the productive male population. Women stay in the home. The road passes by one side of Valdivia, and there is a much more abandoned

look to the community; its wide dirt streets are lined by the split-cane houses typical of the coast, but few people can be seen. Like San Pedro, it lacks the basic public services of electricity and water; and like its neighbor it is heavily dependent on the Spanish missionaries for health care and community direction. Though only slightly smaller than San Pedro, Valdivia has many fewer local organizations, none of which include a significant portion of the population. Communications with the national scene is good; radios are common, Guayaquil newspapers are available daily in San Pedro, and the nearby road carries frequent bus service to the county seat of Santa Elena and beyond to Guayaquil.

Only a few kilometers by paved road inland from San Pedro is Sinchal (see Table III.3.1), an agricultural community of almost 1,500 inhabitants. Construction of the homes is in the coastal style, although there are now more and more cement block buildings along the main road. The land around Sinchal and a few kilometers further inland is good and well-watered by the small river that flows through the area. But the community's farmers have been unable to take full advantage of this because of the lack of financial resources. In certain respects Sinchal is economically more stable than the other three coastal communities we have studied. There is no subemployment because agriculture absorbs every spare hand, and therefore no emigration of the young occurs. Too, the supply of food is steady and relatively varied, meeting local consumption demands but not always plentiful enough to bring a reliable income. Communications are similar in Sinchal as elsewhere in the area: bus service, radios, newspapers and some books. The influence of the Church is also similar; the people here receive some CARE food, cast-off clothes, infrequent medical attention and organizational guidance from the missionary post

in San Pedro.

UMass project impact. In 1973, the UMass project decided to extend the facilitator model to one area of the coast. It was an interest that had been expressed in the first year of the project, and given what they saw as the "success" of the model in rural Sierra communities, the UMass team agreed that the time was ripe to try it out on the Coast.

Enrique Tasiguano, one of the project's two field coordinators, was put in charge of the new program. The area around Colonche, on the coastal strip of Santa Elena peninsula in Guayas province, was chosen as the impact area because of its relative economic and cultural homogeneity, its similarities to other areas of the Ecuadorean coast, and the area's precarious economic conditions. Tasiguano went to the area in late 1973 to begin the selection of communities and later, the facilitators.

Numerous communities on the Santa Elena peninsula were visited personally; those that were eventually selected for the facilitator project were chosen on the basis of the same basic socioeconomic criteria established for the communities in the original CEMA facilitator project. Ranging between 300 inhabitants and close to 2,000, all the communities were agricultural except for San Pedro. As a group they were homogeneous in terms of ethnicity, religion, language and culture, but presented rather wide differences in terms of communication links, physical accessibility and economic solidity.

The selection of community facilitators was carried out quickly. The UMass project contacted the Spanish missionaries in San Pedro, requesting that a group of between 30 and 40 missionary-trained community leaders from the entire area attend the UMass training session in Ballenita (a small resort town on the peninsula). Those leaders who showed some

interest were then asked to contact friends in their communities who might be interested, too. In all, a group of close to 30 persons, male and female but predominantly young, was recruited. In no case was the community at large consulted, nor were community organizations officially asked to suggest names for the training program.

Apparently the facilitators were very unclear before the training began about the nature of the UMass project, the goals it pursued, or what the training was for. Several told us that "I decided to go (to Ballenita) although I didn't know what for"; they had been asked to attend, so "we said alright, and that's the way it was." A number were not even very interested in the reasons for the training; one reported that he went "just to eat what they'll be giving there."

Eighteen of the trainees were from the four communities the evaluation chose to study: three from Colonche, eight from San Pedro, three from Valdivia, and four from Sinchal. Five of the eighteen were women, all close to 20 years old. The thirteen men were from a variety of occupational backgrounds--farmers, masons, fishermen, tailors and carpenters; one was unemployed. Most were in their early 20s; only two were over 40 years old. All but five of the 18 facilitators selected from these four communities had attended between one and five courses in leadership or nursing given by the Spanish missionaries in San Pedro. Educationally, they reflected the easier accessibility to schooling that exists on the Coast; all five women had completed the six primary grades, while only two of the men had failed to reach at least the fifth grade. All the male facilitators could be considered as economically "middle class" within their communities; none was well-off by any means.

Much like the facilitator training for the Colta-Columbe group, the Ballenita session was one week of intensive interpersonal, motivational and group leadership methodologies, with the second week taken up by training in "survival skills" (a UMass project term for learning how to deal with bureaucracies). The trainees received only a small reimbursement for their lost work time, and it was made clear that their work in the communities would be voluntary. As best they could remember later, the facilitators indicated that the non-formal games introduced to them by the UMass trainers were Hacienda (the Coastal version), Mercado (a card game involving sale and purchase of products), Number Dice and Syllable Dice.

The training was apparently successful in transferring to the facilitators an understanding of at least part of the project's broader objectives. In the view of the facilitators we interviewed, the project wanted to "choose its people (and) make them useful so that they can go back and work for the improvement of their communities." In short, what was proposed was "to wake us up a little." The trainees did go away with a clear idea of what a good facilitator should be: confident but democratic; prepared, active, intelligent; skilled in guiding groups; equal with his compañeros. The training was also felt to be useful in a personal sense; several facilitators expressed the opinion that it had given them "a clearer viewpoint", or had helped them "learn about the different classes that operate in a community." Others saw its major benefit as a gain in self-confidence and the loss of personal timidity.

But there were serious problems with the training session, as well. Initially, the project was not well understood (if at all) by the people invited to the training in Ballenita. Their motivation in attending was

ambivalent and, given the circumstances of their selection, greatly dependent on the approval of the missionaries. When, on the second day, there was an encontrón (serious clash) between Tasiguano and one of the nuns who was in attendance, the latter walked out followed by four of the trainees from San Pedro. It effectively cut off communications between the project and the powerful missionaries. The missionary who was originally contacted in San Pedro to help select the facilitators claims that even now, a year and a half after the UMass project began there, "I don't know what Tasiguano was doing here, and I never found out. I would say he wasn't doing anything--or at least nothing good."

In another of the communities, Colonche, the conflict with the project methods came after the training had ended. Community facilitators were disillusioned saying that "they didn't like any of this; it was too much work." Besides, they reported, it appeared that the project "had come to clash with the Catholic leadership."

The implementation of the facilitator-games model in the Coastal communities had gotten off to an uneven start at best.

In San Pedro, two of the eight original trainees began literacy classes based on what they had learned at Ballenita. Initially working together, they formed a small group of between 10 and 20 people, overwhelmingly young, for the games and reflective discussions (see Table III.3.2). It lasted only a short time, however. One facilitator "imposed" too much for the other's taste; he also rambled so badly during the discussions, jumping from one vague concept to another, that the group became confused and ultimately bored. In the end, the group remained together but only as a loose-knit social gathering; on the rare occasions that the games-Syllable Dice, Number Dice, and Hacienda (in early 1975)--were brought

out, it was for recreation rather than real learning.

Very few people in San Pedro are aware today of the UMass project as such; somewhat more numerous are those who know that occasionally a group of people get together to play "some number games." The people recognize the leadership qualities of the two semi-active facilitators, but would not identify them as leaders right now. In fact, about one of them the opinions of local residents are sharply divided, from guardedly positive to openly critical. The eight participants we interviewed at length reflected the community feeling; they felt the games were interesting but of little direct benefit (see Table III.3.3).

The facilitator-games model has followed roughly the same course in Colonche. The initial differences between the missionaries and the UMass staff created a tremendous tension in the local facilitators, since two of the three were church-trained leaders. This tension resulted in a near-total paralysis of the project in Colonche. One facilitator reported that during the training the UMass staff "filled one's head," and that in the end "you have to decide for something." He chose the Church, and said that none of the facilitators has gotten together a learning-discussion group. Rather, they have used two or three of the games (Syllable Dice, Number Bingo, Mercado) in meetings of the Colonche Cultural-Sporting Club, of which they are the leaders, and then only as recreational tools.

A second problem in Colonche is that the community is divided into three groups: two clubs (one of which is the Cultural-Sporting) that are bitter rivals for prestige and political influence, and the rest of the community that merely observes. All the facilitators were selected from one club, which immediately put the UMass project into the fray as

an unwitting antagonist. The facilitators have done nothing to implement the project materials and objectives in the community because they know they would gain no acceptance outside their own circle. Few people outside the Social and Cultural Club are aware of the UMass project's existence, and then only because of the fotonovelas that have been distributed. The eight individuals who had used the different games in Club meetings enjoyed them, finding them useful on a personal level. All agreed that the community had received no benefit from their introduction here (see Table III.3.3).

In Sinchal the project and its goals were well accepted by the three facilitators, despite their own strong ties to the missionaries. But only one of the three has done anything with the training he received, and his activities until just recently have had nothing to do with the UMass project. Rather, he has skillfully incorporated what he learned from the UMass training and what he knew from his various church-sponsored courses to organize community activities (i.e., reorganization of the town council, formation of a cattle cooperative) that are not aimed at the specific goals of either of those organizations. This particular facilitator is held in high regard in Sinchal, and although he holds no official leadership post he is considered by others to be the best leader in the community.

It has only been since January, 1975 (some 15 months after the Ballenita training) that any of the UMass non-formal games were used in Sinchal. The Coastal version of Hacienda was used between five and seven times, but always with a different group of people; Syllable Dice, Mercado and Number Bingo have also been used at least once each, again with shifting groups of people (see Table III.3.2.) All the games--

especially Hacienda--have been very well received; in fact, the people have asked the active facilitator to have sessions more regularly. The use of Hacienda was found by the participants to be extremely useful, since a number of the residents are currently involved in the effort to buy pasture lands for the proposed cattle cooperative (see Table III.3.3).

Here in Sinchal, as elsewhere, a stumbling block has been the economic demands on the time of the facilitator(s) and the participants. Agricultural work is an all-day occupation; people arrive home tired. They can show little real interest in a program that cannot demonstrate the ability to deliver quickly on hopes of improvement for the community and, especially, the participants' economic situation.

As in Sinchal, the UMass project in Valdivia had trained facilitators who were interested in the project and who were acceptable to the rest of the community. There were none of the personal, organizational and ideological conflicts that had so neutralized the project in Colonche and San Pedro. Nevertheless, none of the four facilitators has done anything to organize a stable learning group with which to use the methods and non-formal materials. This is due in part to their occupations and in part to their lack of self-confidence and drive. When interviewed they indicated that several of the UMass games--Syllable Cards, Number Bingo--had been used a few times, but we found no one in the community outside the facilitators and their immediate circle of friends who know what the games were (see Table III.3.2).

In the year and a half between the initiation of the UMass project in the Colonche area and the study made there by the UCLA evaluation, project support for the facilitators had been very sporadic--between four and five visits made to the Coastal area by Enrique Tasiguano and

other project staff members. No new materials were systematically (i.e., group training sessions, field observations, adjustments) introduced, nor were there any further project attempts to select new, perhaps more effective facilitators. A few of the facilitators have attended subsequent nationwide facilitator meetings sponsored by the project, but the effect of these on the progress of the non-formal model in the various communities has not been visible. The individual facilitators who have been active in any way with the non-formal materials do occasionally get together informally, although even this activity has fallen off recently.

The transfer of functional skills and the development of critical consciousness through game use.

The UMass project's experimentation with the facilitator-games non-formal model was aimed at two broad goals: the transfer of functional skills and perceptual change (i.e., critical consciousness or "conscientization") to the peasant, and the use of trained community residents (facilitators) to accomplish this. Our discussion here will focus, then, on the effective transfer of those skills and perceptions, and on the implementation of the model as a basis for future non-formal education activities in rural Ecuador.

In order to provide objective information toward answering this question, a sample of 45 persons who had participated in the non-formal education games led by UMass facilitators was selected in the following six communities impacted by the UMass NFE project: Puñachisac, Tutupala, San Martín, Sinchal, San Pedro, and Colonche.

In March and April of 1975, these 45 villagers were individually administered the same pretest measures (Version 1) and under similar

conditions as the UCLA experimental and control groups. This test administration was done in order to compare the performance of these UMass NFE facilitator-impacted villagers with a demographically comparable sample of villagers from other similar villages which had not been impacted by UMass NFE. The assumption is that any measured differences between these UMass NFE impacted persons and a comparable group of non-impacted ones could be attributable to the effects of the UMass NFE project. Thus, test performance of the 45 UMass NFE impacted villagers was compared with the pretest or baseline data obtained on all the UCLA experimental and control villagers which totaled 461 persons (271 of these receiving Version 2; all the UMass NFE impacted sample received Version 2).

*t* tests of independent means computed on each of the literacy, numerical skills, and critical consciousness composite variables revealed the following significant differences (beyond the .05 level) among the two groups:

The UMass NFE-impacted group obtained significantly higher scores than the non-UMass NFE impacted group on Total Standard Literacy Version 2 (UMass NFE group: $M = 85.57$; other group: $M = 76.49$; $t = 1.96$, 278 *df*, $p < .05$) and Critical Consciousness (UMass NFE group: $M = 15.49$; other group: $M = 14.39$; $t = 2.00$, 509 *df*, $p < .05$).

In addition, on two other measures there were differences approaching the .05 significance level: Total Reading Version 2 (UMass NFE group: $M = 56.07$; other group: $M = 50.63$; $t = 1.85$, 284 *df*, $p < .06$) and Total Standard Writing Version 2 (UMass NFE group: $M = 27.84$; other group: $M = 24.51$; $t = 1.91$, 284 *df*, $p < .06$).

In addition to the above noted test variables, the UMass NFE-impacted and the non-impacted groups differed significantly on other variables: UMass NFE-impacted villagers reported having (a) read magazines on more days of the month preceding the testing (UMass NFE $\underline{M}$ = 4.31, others $\underline{M}$ 1.93, $\underline{t}$ = 2.73, df = 509, $\underline{p} < .01$); (b) watched T.V. on more days of the month preceding the testing (UMass NFE $\underline{M}$ = 1.09, others' $\underline{M}$ = .38, $\underline{t}$ = 3.34, 507 $\underline{df}$, $\underline{p} < .001$); and (c) participated, to a greater extent, in community organizations (44% vs 30%).

There were no other differences among the two groups, including demographic variables.

If the assumption on which the present analyses are true--namely that the 45 UMass NFE impacted persons were of the same level on the measures employed before the UMass NFE impact as the group to which they were compared--then we can come to the following conclusions regarding the extent to which the UMass NFE project carried out its intended objectives effectively in these six rural communities in the areas of literacy and critical consciousness: The UMass NFE project as implemented in these eight communities, in general was effective in significantly improving standard literacy (including reading and writing) and critical consciousness among villagers who participated in the activities led by UMass facilitators. In addition, these villagers increased their use of magazine and t.v. media and also increased their participation in community organizations.

In terms of the long term outcome measures used, the UMass NFE project, however, was not effective in carrying out its numerical skills objectives in these six communities.

We would urge the consideration of the various factors that take away from the generalizability of the findings. For example, there were differences in the length of time between game use and the individual interviews conducted by the UCLA evaluation team in the various communities (two months in Sinchal, over two years in Puñachisac). The range of games used by the interviewees (some had used one or two games a few times, others were familiar with up to six games and had played them over fifty times) was another factor. Also, the spotty UMass project implementation in a number of instances must lead us to the conclusion that the significant gains shown by this set of UMass participants can in no way be attributed solely to the use of the non-formal games. Indeed, there are a number of potential hypotheses that one might generate to explain the outcome scores in UMass impacted communities. We have already discussed factors such as the characteristics of specific facilitators, presence of other organizations in the community and other such factors present prior to and during the implementation. Another possible factor related to long term effects may simply involve the increased receptiveness of a community to educational stimuli after the impact of an outside agency.

What these figures do indicate, however, is the very real potential of such an integrated facilitator-games model to effect cognitive and "critical consciousness" changes under certain favorable conditions.

## QUESTION 4: WHAT ARE THE LEARNING OUTCOMES OF SELECTED NON-FORMAL EDUCATION MATERIALS DEVELOPED BY THE UMASS NFE PROJECT?

In order to provide objective information to answer this question, the evaluation introduced four of the most widely used non-formal education games developed by the UMass project into a total of 15 virgin communities. These NFE games were Hacienda, Syllable Cards, Syllable Dice, and Number Bingo. The procedures for selecting the communities in the games, and for introducing and playing the games in each community have been described in Chapter II. In each community, the villagers participating in the NFE games were administered tests on a pre-post basis designed to measure learning outcomes in several areas of knowledge and skill. The present question deals with the effects of the NFE games on Reading, Standard Writing, Functional Writing, and Math. The procedures for administering and scoring these tests have been presented in Chapter II.

In order to determine the extent to which test-retest differences found in these 15 experimental communities could be due to factors other than the intervening treatments (e.g., test practice effects), a sample of 16 individuals was obtained from two Sierra communities in which there was no treatment intervention. These two control communities were selected for this purpose for their similarity to the communities in which there was treatment intervention. These 16 persons were administered the same pretest and the same second test as the treatment persons, the administration of the two tests separated by the same time span as for the treatment groups (five weeks). No treatment was given to the control persons.

Analysis of the results revealed that the *t* tests for correlated means computed for the 16 control villagers (comparing performance on the pre and

second tests) showed no significant gains on any of the literacy or numerical skill variables. It can be safely assumed, then, that any significant gains in the results involving the experimental communities are due to treatment effects.

The remaining portions of the answer to the present evaluation question will be organized as follows. Each of the four NFE games will be discussed, separately by community, in terms of its learning effects among individuals participating in the game sessions. In addition, the findings on learning outcomes for only those persons who obtained the lowest scores on the various measures at pretest are presented.

The analyses performed are t tests for correlated means comparing performance on individuals having data on each pair of repeated measures means. In order to avoid capitalizing on chance results, only those findings in which the significance level was near or beyond the .05 level will be discussed.

Learning Outcomes of Syllable Dice

Syllable Dice was played in a total of seven communities (four Sierra and three Coast communities): San Francisco, Hipolongo, Yayuliguí, and Pilchipamba in the Sierra and San Pablo, Cadeate, and Dos Mangas on the Coast. In two of the communities (San Francisco and Cadeate) it was played as the first and only game; in Hipolongo and Dos Mangas it was played as the second game to Hacienda; in Yayuliguí, Pilchipamba, and San Pablo as the second game to Syllable Cards. In four of the seven communities (San Francisco, Cadeate, Dos Mangas, and Pilchipamba) Version 2 of the tests was employed, and in the rest Version 1 was used.

San Francisco. In this Sierra community, one game was introduced by the evaluation staff--Syllable Dice. There were pre-post measures on a

total of 12 villagers who participated in the game.

Results showed no significant increases in any of the literacy-related measures. It should be noted that these villagers, as a group, were fairly close to criterion in Reading and Functional Writing on pretest. There was, however, an unexpected significant increase in Math ($M$ gain = 6.75, $t$ = 3.31, 11 $df$, $p < .01$).

Cadeate. In this Coast community, the evaluation staff introduced one non-formal education game, Syllable Dice. There were pre-post measures on a total of 13 villagers participating in the game sessions.

There were no significant increases in any of the measures as a result of playing Syllable Dice. These villagers as a group were far from attaining criterion levels on the pretest measures.

Hipolongo. In this Sierra community the evaluation staff introduced two games in sequence: Hacienda and Syllable Dice. There were pre-post measures on a total of 13 villagers participating in the games.

A comparison of results of the second vs. third tests revealed no significant increases in any of the literacy or numerical skills measures. It should be noted that these villagers as a group were fairly close to attaining criterion level in Reading and Functional Writing at pretest.

Yayuligui. In this Sierra community, Syllable Dice was introduced by the evaluation staff as the second game to Syllable Cards. There were measures on a total of 13 villagers participating in the games.

When comparing scores on the second vs. third tests, there were no significant differences in any of the literacy or numerical skills measures.

It should be noted that as a group these villagers had practically attained criterion in Reading on the second test; there was, however, some room for improvement in the writing measures.

Pilchipamba. In this Sierra community, Syllable Dice was introduced by the evaluation staff as the second game to Syllable Cards. There were measures on a total of four villagers participating in Syllable Dice. This represents a fair amount of attrition from the 13 villagers playing the first game and for whom there were pre and second test measures.

When comparing performance on the second vs. third tests no significant increases were found in any of the literacy or numerical skills measures.

While as a group these four persons had attained criterion in Functional Writing at second test, there was still room for improvement in all the other variables.

San Pablo. In this Coast community the evaluation staff introduced Syllable Dice as the second game to Syllable Cards. There were measures on a total of 12 persons participating in the second game.

When performance on the second vs. third tests was compared, there were no significant increases in any of the literacy or numerical skills variables. It should be noted, however, that on the second tests, these villagers as a group had attained criterion level in Reading and Functional Writing.

Dos Mangas. In this Coast community the evaluation staff introduced two non-formal education games in sequence, Hacienda and Syllable Dice. There were pre-post measures on a total of 15 villagers who participated in the Syllable Dice sessions.

A comparison of the second vs. third tests revealed significant immediate increases in Total Standard Writing ($M$ gain = 1.07, $t$ = 2.98, 14 $df$, $p$ <.01).

Table III.4.1

Learning Outcomes of Syllable Dice

| Community | Reading | Functional Writing | Standard Writing | Math |
|---|---|---|---|---|
| Sierra | | | | |
| San Francisco | No* | No* | No | Yes |
| Hipolongo | No* | No* | No | No |
| Yayuligui | No* | No | No | No |
| Pilchipamba | No | No* | No | No |
| Coast | | | | |
| Cadeate | No | No | No | No |
| San Pablo | No* | No* | No | No |
| Dos Mangas | No | No | Yes | No |

Note: "Yes" = There was a significant increase; "No" = There was no significant increase.

*As a group these villagers had attained or were close to attaining criterion level on the measure before playing Syllable Dice.

Analyses on the Effects of Syllable Dice on Villagers with Low Initial Scores

Separate analyses were performed only for villagers in San Francisco and Cadeate--the two communities in which Syllable Dice was played as the first and only NFE game. In this analysis, only villagers scoring 25 or below on Total Reading, Version 1 pretest, were considered (four persons). For this group there were no significant differences in any of the measures.

When the analyses were performed for those villagers in these two communities scoring 22 or below on Total Functional Writing, Version 1 at pretest (five individuals) there were again no significant differences in any of the measures between the pretest and second test.

Analyses were also performed on villagers in Hipolongo, Yayuligui, Pilchipamba, San Pablo, and Dos Mangas (the five communities in which Syllable Dice was played as the second NFE game). In this instance, villagers with scores of 25 or below in Total Reading Version 1 pretest (five individuals) showed no significant differences in any of the measures.

When the analyses were performed on villagers in these five communities with scores of 22 or below in Total Functional Writing, Version 1 pretest, again no significant differences occurred in any of the measures.

Learning Outcomes of Syllable Cards

Syllable Cards was played in a total of five communities (three Sierra and two Coast communities): El Calvario, Yayuligui, and Pilchipamba in the Sierra and San Pablo and Palmar on the Coast. In three of the communities, Yayuligui, Pilchipamba, and San Pablo, it was played as the first game; in El Calvario and Palmar it was played as the second game to Hacienda. In two communities, El Calvario and Pilchipamba, Version 2 of the tests was

employed; in the remaining communities Version 1 was used.

Yayuliguí. In this Sierra community the evaluation staff introduced Syllable Cards as the first game. There were measures on a total of 11 villagers participating in this NFE game. Results showed no significant differences in any of the literacy or numerical skills measures when scores on the pre vs. second tests were compared. As a group, however, these villagers had attained criterion level in Reading on the pretest. There was room for improvement, though, in the writing measures.

Pilchipamba. In this Sierra community the evaluation staff introduced Syllable Cards as the first game. There were measures on a total of 13 villagers participating in this NFE game. There were no significant differences in any of the measures when the pre vs. second tests were compared.

San Pablo. In this Coast community the evaluation staff introduced Syllable Cards as the first game. There were measures on a total of 13 villagers playing this NFE game. As a group, these villagers had attained criterion level in Reading and Functional Writing. There were no significant increases in Standard Writing, however, where there was considerable room for improvement.

El Calvario. In this Sierra community the evaluation staff introduced Syllable Cards as the second game to Hacienda. There were measures on a total of six villagers playing Cards. A comparison of scores on the second vs. third tests revealed no significant differences in any of the literacy or numerical skills measures. It should be noted, however, that as a group these villagers had almost attained criterion in the Reading and Functional Writing measures at second testing.

Palmar. In this Coast community the evaluation staff introduced Syllable Cards as the second game to Hacienda. These villagers as a group

had attained criterion level in Reading and Functional Writing. There was no significant increase in Standard Writing.

Table III.4.2

Learning Outcomes of Syllable Cards

| Community | Reading | Functional Writing | Standard Writing | Math |
|---|---|---|---|---|
| Sierra | | | | |
| Yayuligui | No* | No | No | No |
| Pilchipamba | No | No | No | No |
| El Calvario | No* | No* | No | No |
| Coast | | | | |
| San Pablo | No* | No* | No | No |
| Palmar | No* | No* | No | No |

Note: "Yes" = There was a significant increase; "No" = There was no significant increase.

*As a group these villagers had attained or were close to attaining criterion level on the measure before playing Syllable Cards.

Analyses on the Effects of Syllable Cards on Villagers with Low Pretest Scores

When analyses were done for individuals in Yayuliguí, Pilchipamba, and San Pablo (the three communities in which Syllable Cards was played as the first game), it was found that there was only one villager in all three communities with a score of 25 or less in Reading and only three villagers with a score of 22 or less in Functional Writing at pretest.

When analyses were done for individuals in El Calvario and Palmar (the two communities in which Syllable Cards was played as the second game), it was found that in these two communities combined only one villager had a score of 25 or less in Reading and no villagers had a score of 22 or less in Functional Writing at pretest.

Learning Outcomes of Number Bingo

Number Bingo was played in a total of four communities (two Sierra and two Coast communities): Rumipamba and Asunción in the Sierra and Barcelona and Montañita on the Coast. In Montañita it was played as the first game. In the other three communities it was played following Hacienda. In Montañita and Barcelona Version 2 of the tests was used, and in the other two communities Version 1 was employed.

Montañita. There were measures on a total of 17 villagers playing Number Bingo. There was a near-significant immediate increase in Total Math scores as a result of playing Number Bingo ($M$ gain = 2.24, $t$ = 2.06, 16$df$, $p < .06$).

Rumipamba. There were pre-post measures on a total of 12 villagers playing Number Bingo. There were no significant increases in learning outcomes as a result of playing Number Bingo in this community.

Asunción. In this community there were pre-post measures on a total of 15 villagers playing Number Bingo. A comparison of scores on the second vs. third tests revealed significant increases in Total Math (M gain = 3.00, $t = 2.36$, 14 df, $p < .04$)

Barcelona. In this Coast community there were pre-post measures on a total of 15 villagers. Results showed no significant differences in Math or in any other variable as a result of playing Number Bingo.

Table III.4.3

Learning Outcomes of Number Bingo

| Community | Significant Immediate Increase in Math |
|---|---|
| Sierra | |
| Rumipamba | No |
| Asunción | Yes |
| Coast | |
| Barcelona | No |
| Montañita | Yes |

The Effects of Number Bingo on Analyses on Villagers with Low Initial Scores

Analyses were performed on villagers with scores of less than or equal to 24 on Total Math Version 1 of the pretest. In Rumipamba, Asunción, and Barcelona, the three villages where Number Bingo was played as the second game, 12 villagers in the category showed a significant increase in Total Math from the second to the third test (M gain = 4.25, t = 2.32, 11 df, $p < .04$).

When analyses were done on villagers in Montañita with low initial scores in Total Math Version 1 pretest, it was found that only two villagers had scores of 24 or less in the Total Math pretest. No further analyses were performed.

Learning Outcomes of Hacienda

Even though Hacienda is not intended primarily as a direct means of developing literacy or numerical skills, the "unintended" effects of this NFE game on literacy and numerical skills were investigated, following the same procedures as for the NFE games discussed previously.

Hacienda was played in a total of nine communities. It was the first or only game in five Sierra and three Coast communities. The Coast communities were Dos Mangas, Barcelona, and Palmar. Hacienda was played as a second game in San Antonio, a Sierra community, while it was the first game in Hipolongo, Rumipamba, Miraflores, Asunción and El Calvario. In three Sierra (Miraflores, San Antonio, El Calvario) and two Coast (Dos Mangas and Barcelona) communities Version 2 of the tests was used; in the remaining communities Version 1 was employed.

Miraflores. One non-formal education game was played in this community, Hacienda. There were pre-post measures for a total of ten persons who played the game. Results showed no difference in performance in any of the

measures as a result of playing Hacienda five times over a five week period. It should be noted that these villagers as a group were quite far from attaining criterion level on pretest on any of the measures, even on Version 1 test scores.

Rumipamba. In this Sierra community, the evaluators introduced two games in sequence as treatments: Hacienda and Number Bingo. There were measures on a total of 12 persons who played Hacienda. As a result of playing Hacienda there were significant immediate increases (pretest vs. second test) in Total Math ($\underline{M}$ gain = 2.25, $\underline{t}$ = 4.42, 11 $\underline{df}$, $\underline{p} < .001$). As a group, these villagers had almost attained criterion in Reading and Functional Writing on the pretest; on the second test all had attained criterion.

The gains produced by Hacienda in Math were still present five weeks later during which time Number Bingo was played, as evidenced by a significant $\underline{t}$ value when the pre and third test math scores were compared.

Asunción. In this Sierra community, the evaluation staff introduced two non-formal education games in sequence: Hacienda and Number Bingo. There were measures on a total of 16 persons participating in the games.

There were no significant gains on any of the test measures immediately following the playing of Hacienda five consecutive times over a five week period.

It should be noted that in this community, as a group, the villagers participating in the NFE games were far from attaining criterion level on all of the measures on the pretest.

Hipolongo. In this Sierra community two non-formal education games were introduced in sequence by the evaluators, Hacienda and Syllable Dice. There were measures on a total of 12 persons who participated in the Hacienda sessions. As a result of playing Hacienda, there was a significant immediate

increase (1.25 M gain, t = 2.53, 11 df, p < .03) in Standard Writing. This difference was still significant (pre vs. third test) after playing Syllable Dice.

As a group, the villagers attracted to the NFE sessions in this community had practically attained criterion level on the pretest in Reading and in Functional Writing.

El Calvario. In this Sierra community the evaluators introduced two non-formal education games in sequence: Hacienda and Syllable Cards. This is one of the two UCLA experimental communities in which the animador was a local campesino leader.

Results showed significant increases (pre vs. second test) immediately after playing Hacienda for five consecutive times over a five week period in Total Reading scores (M gain = 3.80, t = 2.97, 9 df, p < .016).

When one compares scores on the pre and third test, there were significant differences in Total Reading, indicating that the gain produced on this variable immediately after playing Hacienda was still present after playing Syllable Cards five times over a five week period.

San Antonio. In this Sierra community, Hacienda was played during the second set of game sessions. There were pre-post measures on a total of nine villagers playing Hacienda. Results showed no significant differences in any of the measures as a result of playing Hacienda.

Palmar. In this Coast community the evaluation staff introduced two NFE games in sequence, Hacienda and Syllable Cards. Measures were obtained on a total of 15 villagers participating in the game sessions. As a result of playing Hacienda there was a significant immediate increase in Total Reading (M gain = .86, t = 2.60, 13 df, p < .02). As a group, these villagers had practically attained criterion in Functional Writing on the pretest.

Barcelona. In this Coast community the evaluation staff introduced two NFE games in sequence: Hacienda and Number Bingo. There were measures on a total of 16 villagers who participated in the game sessions. Results show no significant immediate changes in any of the literacy or numerical skills measures following the use of Hacienda. It should be noted that as a group these villagers attracted to the NFE games were fairly advanced with respect to Reading and Functional Writing, although there was some room for improvement; there was considerable room for improvement, however, in numerical skills.

Dos Mangas. In this Coast community the evaluation staff introduced two non-formal education games in sequence: Hacienda and Syllable Dice. There were measures on a total of 19 villagers who participated in the game sessions. Results show no significant immediate increases in any of the literacy or math measures following the use of Hacienda five times over a five week period. It should be noted that as a group, these villagers were far from attaining criterion on the pretest in the literacy and numerical skills measures.

TABLE III 4.4

Learning Outcomes of Hacienda

| Community | Reading | Functional Writing | Standard Writing | Math |
|---|---|---|---|---|
| Sierra | | | | |
| Rumipamba | No* | No* | No | Yes |
| Hipolongo | No* | No* | Yes | No |
| El Calvario | Yes | No | No | No |
| Asunción | No | No | No | No |
| Miraflores | No | No | No | No |
| San Antonio | No | No | No | No |
| Coast | | | | |
| Palmar | Yes | No* | No | No |
| Dos Mangas | No | No | No | No |
| Barcelona | No* | No* | No | No |

Note: "Yes" = there was a significant increase; "No" = there was no significant increase.

* As a group these villagers had attained or were close to attaining criterion level on the measures before playing Hacienda.

Analyses on the Effects of Hacienda on Villagers with Low Initial Scores

Analyses were performed aggregating across all Sierra communities in which Hacienda was played as the first NFE game (Rumipamba, Hipolongo, Asunción, El Calvario, Miraflores). When all villagers with scores of 25 or below on pretest Reading (12 persons) were considered, there were significant increases in Reading ($M$ gain = 2.58, $t$ = 3.05, 11 $df$, $p < .01$) and Functional Writing ($M$ gain = 2.42, $t$ = 2.75, 11 $df$, $p < .02$). When similar analyses were done for villagers with scores of 24 or less in Math Version 1 pretest (21 villagers) it was found that these persons did not increase their Math scores as a result of playing Hacienda.

Analyses were also performed aggregating across all Coast communities in which Hacienda was played as the first NFE game (Palmar, Dos Mangas, and Barcelona). When all villagers with low initial scores in Reading and Functional Writing (five persons) were considered, no significant increases were found in any of the variables. Likewise, the nine villagers with initial scores of 24 or below in Math did not increase significantly their Math scores as a result of playing Hacienda.

## Summary and Conclusions Regarding the Learning Outcomes of Selected Non-Formal Education Materials Developed by the UMass NFE Project

NFE Literacy Materials (Syllable Dice and Syllable Cards). Results indicate clearly that Syllable Dice in general was not effective in increasing the level of literacy among villagers after playing it five times over a five week period (See Table III.4.1). In none of the seven different communities in which it was played did Syllable Dice produce significant gains in Reading or Functional Writing.

Similarly, results show that Syllable Cards was not effective in significantly increasing literacy levels in any of the five communities in which it was played (See Table III.4.2).

An additional conclusion is that in several of the communities, these two NFE games tended to attract more individuals who were already literate or semi-literate than it attracted illiterates. Nevertheless, results showed that even those who were at the lower levels of the literacy continuum in general did not increase significantly their literacy level as a result of playing either one of these two NFE games.

Numerical Skills NFE Materials (Number Bingo). Results show that Number Bingo was effective in increasing simple numerical skills among villagers who had very low levels of these skills.

Critical Consciousness Materials (Hacienda). Results show that Hacienda was effective in raising Reading and Functional Writing skills only among villagers with low levels of reading ability, and only in the Sierra.

The conclusions based on the empirical data presented herein in no way should be interpreted as suggesting that these non-formal education materials might not be effective in producing their intended learning outcomes if used in a different manner than the way in which they were implemented by the evaluation staff. The conclusions apply to the manner in which these treatments were implemented; these implementation procedures have been presented in detail in Chapter II of the present report. It is, however, with a great deal of confidence that we report the present findings as results of the treatments implemented by the evaluation staff.

As we have pointed out in response to some of the other evaluation questions, the effects of the use of these non-formal education games seems to be a function of a host of factors, including principally the manner in which they are implemented by the facilitator and the nature of the group playing the game. In fact, as noted in the response to evaluation question #3, another principal finding is that the impact which the total UMass NFE project had in the communities selected for that component of the evaluation, appears to have been effective in increasing the level of literacy of participating villagers. The total UMass NFE impact in some of those communities involved the use of these games in the context of the UMass NFE project facilitator model and in the total context of the UMass NFE project intervention. Moreover, there may be learning effects of the games that are measurable only in the long term and which do not manifest themselves after only five sessions.

## QUESTION 5: WHAT ARE THE CHARACTERISTICS OF THE MORE AND LESS EFFECTIVE MATERIALS DEVELOPED BY THE UMASS NON-FORMAL EDUCATION PROJECT?

The UCLA evaluation project's eight months of field work allowed us to observe four UMass non-formal educational games in use literally hundreds of times under the most varied physical and human conditions imaginable. We are convinced that we came to know the four games used in the evaluation--Hacienda, Syllable Dice, Syllable Cards and Number Bingo--as well, if not better, than anyone in Ecuador. As a result of this experience we have been able to carefully weigh each of these games in practice against the original criteria set out for them by the UMass project. Here we will discuss the major physical and cognitive characteristics of each of the four games. Their motivational attributes will be dealt with separately, in Question 3.

The effectiveness of each game is dependent upon the educational and/or motivational uses to which each participant group wishes to put them, and the educational characteristics of that group of individuals. Those findings are discussed in Evaluation Questions 4 and 6.

### Syllable Dice (Dados de sílabas)

Physical Aspect. The physical form of the dice is relatively novel for the peasant (though not totally unknown) and bears little relation to his or her previous experience. Nevertheless, the dice were found to be attractive and easily handled by the participants. Their construction (flat surfaces with large lettering) allows for easy visibility and manipulation of the words that are formed (i.e., the words are seen as words, not merely a series of syllables).

The particular syllables printed on the dice were chosen by the UMass Project staff to allow for the formation of words familiar to peasants (see Technical Note #6). We found, however, that relatively few of the words most commonly formed related directly to rural reality; rather, words that are commonly used all over Ecuador--place names, foods, objects of clothing--are more likely to come up.

Since there are only two versions of the Dice, neither of which are area-specific in content, the words are too general to be able to tie in directly with village life either in the Sierra or on the Coast, nor are they able to take into account the great ecological, economic and social differences that often exist between areas of the same geographical region.

Several of the syllables (qui, lia, tria, llu) were put on the dice for the formation of certain words (sequía, patria, lluvia, quitar) deemed important by the UMass project, but which are usable only with one other syllable. These particular words often do not get formed in the course of a game, leaving the campesino with several dice that are virtually useless. This frustration is compounded by the absence of other syllables (am, for example) which are crucial for words the peasants deem important (am would be used to form Ambato).

We found, too, that the 14 dice are too few to permit a great number of different words to be formed during any one game session. In communities such as Yayuligui, San Francisco, and Pilchipamba, the same words were being formed again and again. Some participants found this frustrating, others found it challenging. In either case, it acts to limit the actual skill transfer that can be accomplished, as well as negatively influencing continuing attendance of participants above the

level of recent literacy.

Manageable with few directions. The physical aspect as well as the content of the Dice allow for easy manipulation after a minimum of instruction. The great majority of peasants we encountered were familiar with the concept of word formation through syllables, and they enjoyed being able to practice it in a physical form. The words that are most commonly formed by the dice are simple, and lend themselves easily to the peasant-teaching-peasant objective of this non-formal education project. The Syllable Dice was the game most often played by participant groups without the facilitator having to be present.

Easily reproducible. In terms of both physical accessibility to the necessary material (wood) and the actual cost, the dice are extremely easy to reproduce. Nevertheless, in no games-impacted community in either the evaluation group or the UMass project sample had the Dice ever been manufactured. There appears to linger the idea in rural villages, however much an institution may try to dispel it, that goods (especially educational ones) brought by trained persons from outside simply are beyond local capabilities to reproduce. Also, the difficulties associated with the selection of syllables for the dice would indicate that locally-produced sets might be even more limited in terms of words one can form than are the present sets.

The game should satisfy the learning needs of the participants. (See note at the end of this section)

The game should offer the possibility of "reflection." This game itself does not necessarily lead to reflection; there is the need for a facilitator to begin to draw the connection between the words formed and rural reality. As such, reflection is not intrinsic but rather additional

to the Dice. Also, the nature of the game--word formation--definitely limits the range of possible reflective topics.

We found that when the Dice were played by a group without a facilitator, participants tended to either play for play's sake, or to limit their own discussions to questions of word spelling and definitions. There were many words being formed which might interest the group, although not all would be rural-related, but the participants lacked the practice in drawing generalizable observations and conclusions from single words they had spelled out. Too, the topics for reflection were words rather than experiences; the process of reflection on them thus began as inductive, which is the opposite of the usual campesino thinking process (i.e., deducing specifics from a more general experience).

The game should aid in the development of communication skills. Interpersonal communication is not a fundamental part of the game, nor is action of the group as a whole. Communication most often takes place at a participant-to-facilitator level: comparing words formed, repeating the words out loud, and correcting the words. This aids the individual who seeks to improve reading and writing skills, but avoids the objective of expressing those skills in social situations (i.e., meetings, activities, faced with authorities). Nor is there a group communication skill fomented, since the experience of the game is atomized--each participant forming his/her own words. The reflection period offers possibilities for individual oral expression, but the actual play does not.

Syllable Cards (Naipes de sílabas).

Physical Aspect. The deck of approximately 80 cards is easily

manageable, especially for adult males who are quite familiar with cards and card games. In this, the cards are somewhat related to rural community life since it is a very common form of recreation in the evenings or on weekends.

The letters and syllables on the cards are in large, clear type, but their placement in the center of the card with a good amount of space on either side makes difficult the perception of the words as a whole. Participants with higher levels of abstraction can visualize the words anyway, but we observed that people less familiar with the printed word (the supposed target group for this game) had difficulty in doing so. The "word" remained a series of individual syllables.

The greater number of cards facilitates the formation of words as compared to the Syllable Dice, and the words tend to be more closely related to rural reality and the experience of the participants. As with the Dice, however, there is no differentiation made between the Sierra and the Coast, with many region-specific words cropping up in areas where they are extraneous to the experience of the participant. Likewise, a number of syllables appear to have been included in order to be paired with certain others for the formation of specific words; when these syllables don't show up in the player's hand, there is often a good deal of confusion or even frustration.

The Syllable Cards show small one-digit numbers on the upper left corners, apparently for playing on a point basis instead of just word formation. We saw in most communities where the cards were used that the numbers served no purpose; participants either ignored them or became confused in trying to keep their attention on both the syllable and the number.

Manageable with few directions. Physically and conceptually we found that the Syllable Cards offered very few difficulties. Once people became used to the novelty of playing by words instead of numbers and suits, play would proceed smoothly. The range of words that can be formed, however, requires the presence of a facilitator to clarify them in terms of spelling and definition.

Since cards are such a common form of recreation in rural villages, we found that the Syllable Cards were often taken as a diversion more than anything else. The eighty cards in each deck offer the possibility of forming a variety of words which would not normally be used in polite public conversation. The conversion of the cards to a serious learning tool has to overcome this particular handicap not faced by the other evaluated games.

The game should satisfy the learning needs of the participants. (See note at the end of the section).

Easily reproducible. The cards present no problems in physical terms, but the cost and quantity of the necessary materials (high-grade cardboard, pens or marking pens) could be a barrier in many poorer, isolated communities. Like the Dice, the selection of appropriate syllables presents another problem; while peasants can and do suggest additions or deletions from the manufactured deck brought to the community, the creation of an entirely new set that lends itself to the formation of relevant words on a consistent basis is beyond their capabilities. In no games-impacted community anywhere had the participants manufactured their own deck of Syllable Cards.

The game should satisfy the learning needs of the participants. (See note at the end of the section).

The game should offer the possibility of "reflection." The cards themselves do not necessarily imply reflection; a facilitator is needed to take advantage of the words that come out of the game and begin to draw the comparisons with daily life. As such, reflection is not intrinsic but rather additional to the game, nor do the cards include a variety of topics or experiences that automatically lend themselves to reflective discussion.

In these limiting respects, the Syllable Cards resemble the Dice. The process whereby individual words are expanded upon, linking them to daily experiences from which general conclusions can then be drawn is a long and inverted one for the average campesino. It is this, not the difficulty of the individual words, that necessitates a facilitator's presence.

The game should aid in the development of communication skills. Since playing with cards presupposes neither coordinated group action nor person-to-person communication, the possibilities for development of these communication skills are very limited. Calling out words, identifying words and defining them, correcting spelling, etc. are isolated, individual skills that are rarely applicable to the direct needs of a peasant.

The average campesino uses his/her communication skills to deal with paper work connected with legal matters and, more often, to deal with authorities or economic agents (buyers, sellers, middlemen) orally. The Syllable Cards do appear to aid in correct spelling of individual words, but it is a long step from that to the comprehension of written paragraphs in complicated terminology. And there is no connection at all between the skills this game imparts and the need to improve one's

oral communication. The Syllable Cards seem to be most useful as a starting point for activities a facilitator or the group might wish to explore more fully outside the game itself.

Number Bingo (Bingo de suma y multiplicación)

Physical Aspect. Bingo (also known as quina) is a well-known game in most rural communities and thus can be said to have a certain connection with previous participant experience. It is the simplest game to manipulate of the four we have evaluated; aside from the one person who calls out the printed math problems, the participants have only one rectangular card and a small pile of stones or seeds to handle. The numbers are easy to read, limited as they are to two digits.

One set of problem cards and answer cards are for multiplication and another set for addition. The game is flexible in that it can be played alone or in unlimited groups; it can serve as a learning tool for those just beginning with numbers, a brush-up for those who may have forgotten somewhat, training in rapidity of calculation for farmers and small merchants, and pure recreation at parties.

But it is strictly a math game, with no other uses intended or possible for it. We observed in each community where bingo was played that people were attracted to it initially because of its simple, non-threatening format, but then quickly tired of its limitations. This was especially true where the participant groups were already functionally literate. The operations in bingo are too simple; for a person with even the most basic of arithmetic skills the game offers very limited possibilities for knowledge expansion.

Manageable with few directions. This is the game which requires

the least amount of instruction. At least one person in every learning group is familiar with bingo-type games, and most people are familiar with the math operations they call for. Participant groups were able to take over direction of the sessions with Bingo from the very time it was introduced in the community. The groups quickly came up with variations on its play--diagonal, vertical, full-board to win; winner reads out all the answers; etc. As a strict learning tool, Bingo is the UMass project game which least requires the presence of a facilitator.

Easily reproducible. The game's simple physical aspect lends itself well to reproduction. The markers used to cover the numbers can be anything from small stones to chips of wood to kernels of corn; the only barrier would be the availability and perhaps the cost of the cardboard in some small villages. The specific math problems used in the game were designed by the UMass project to meet what they considered to be the learning needs of peasants; unlike the Syllable Dice and Cards, the design of a new board and a new set of problems (probably more complex ones) would not be a great task for a learning group. Yet to date this has never been done; the boards are used in the state in which they have been brought to the community.

The game should satisfy the learning needs of the participants. (See note at the end of this section).

The game should offer possibilities for "reflection." As with the Syllable Dice and Cards, reflection does not spring naturally from the bingo game. There are aspects of it that can be profitably discussed and reflected upon, but a facilitator is needed to begin the process. It thus becomes an additional process rather than an intrinsic one. Also, the narrow scope of the game's content limits the range of ideas

and experiences that can be drawn upon for reflection.

We found this game to be the most difficult of the four evaluated project materials from which to begin a reflection process; it is the game most commonly seen as light entertainment. The most natural avenue for discussion is that of the economic experiences of the participant group--buying and selling products in the market, loans, interest rates, calculating future needs for fertilizers and seeds, etc. But the bingo game only serves as the weakest of springboards towards such discussions because such economic problems are so much more complex and challenging than the two-digit problems in the game.

The game should aid in the development of communication skills. As a highly individual activity, Bingo offers no opportunity for developing communication skills in the participants; even more than with the dice or cards, people work alone and in silence. It is only during the reflection period that players have any chance to process the experience and expand upon it.

Hacienda (Juego de la Vida)

Physical Aspect. Based as it is on physical and cultural elements found in rural Ecuador, Hacienda draws immediate recognition from the campesino players; it is a reflection of their daily lives. Hacienda is, however, an agricultural game; extremely flexible (roles, situations, products) in an agricultural community, it is close to meanirgless in other types of rural villages (i.e., fishing, small commerce) since its elements cannot be changed en masse. Also, we found that Hacienda generalized a little too much on rural experience; for example, not every region of the coast or highlands deals in all of the products

represented in the two versions, yet the participants are put into situations that presuppose familiarity with their cultivation and sale. Some important conceptual elements are unknown to some rural groups, or too abstract for easy understanding. These incongruities are not so serious as to hinder effective play, but they have been observed to lead to needless confusion in participant groups.

In its physical form Hacienda is too small; it bears no relation to the minimum number of players required (without at least six players the game is inoperative, yet only five people can comfortably gather around the board). The maximum number of players is not set (we have seen up to eleven active characters involved in the game), but any number above eight creates serious problems of manueverability and access to the playing area; this on top of the large group of on-lookers that is always attracted to the playing of Hacienda.

The sheer amount of items to be manipulated and kept track of--individual markers, dice, money, property, titles, cards of chance and cards for the church and cards for the teniente político--is overwhelming for most peasants. This is a serious obstacle to effective play as it creates great confusion and even frustration among the participants. People are often so involved in keeping their own things straight that the game as an involving group activity is hampered.

We found, too, that a relatively high level of literacy is required for a peasant to play effectively. Many words on the cards to be drawn are difficult to pronounce, and even uncommon. The property titles are a maze of fine print with confusing and seemingly contradictory instructions, and too many numbers. Though critical to the objective of the game--effective manipulation of the marketplace and dealing with life

situations--the cards and property titles are not understood, becoming a frustrating rather than enlightening experience for the average campesino.

The roles designed into the game (i.e., peasant, lawyer, priest, police) are readily understood by the participants, and very flexible according to the situation of each agricultural community. Most roles are open-ended. Their development is dependent on the experience and feeling of the peasant filling the position. The most difficult role is that of banker, which requires a great deal of speed, mental agility, written operations and keeping track of a growing list of debts, interest payments and sales; played as it should be played, the banker's role is beyond the capabilities of all but a very few peasants.

Hacienda is the game most closely related to rural reality, thus attracting the greatest interest in villages. It is also the most complex, potentially confusing of the evaluated games.

Manageable with minimum direction. Hacienda cannot be played well physically without a facilitator or animator who is thoroughly familiar with it and able to answer questions, mediate disputes and see that all of the game's complex elements are being used effectively. For the game to be able to reach its motivational and attitudinal objectives, a facilitator or animador is absolutely necessary. Misinterpretation of the situations and objectives that are built into this game (e.g., the roles of the lawyer and priest; the position of hacienda owner) is a constant danger. The game is not a social time bomb, as some have feared, but it does touch on serious, sensitive matters and they must be dealt with fully and openly. A well-trained facilitator is a must.

We observed that unlike the "fluency" games, Hacienda does not lend itself easily to simple entertainment. The number of interacting players,

the quantity of materials and the proximity of its themes to daily life make Hacienda too involved an experience to be played quickly or carelessly. In several evaluation communities participant groups attempted to play it between visits by the UCLA facilitator, but reported that much of the game's subtlety was lost without someone there to answer questions and observe the play objectively.

Easily reproducible. This is the most difficult of the four evaluated games in terms of reproduction under rural conditions. The game uses a variety and quantity of materials--paper, cardboard, wood, pens and pencils, ink--that are not all obtainable, physically or economically, in small villages. Moreover, none of the elements can be eliminated without seriously altering the scope of the game. Likewise, the various skills that would be necessary to produce the Hacienda game are beyond the range of most common peasants.

The UMass project manufactured a number of rubber stamps, each containing a square from the playing board (i.e., the church, different property squares, the school, etc.), in order to facilitate the game's reproduction by peasant groups. The stamps were also to allow a flexibility in order and content, since the elements of the manufactured version of the game cannot be changed. But the stamps are most often used in the project's office, which only highlights the difficulty a campesino group would have in trying to create their own copies, let alone a totally original version of the game.

The game should satisfy the learning needs of the participants. (See note at the end of this section).

The game should offer the possibility of "reflection". To an extent infinitely greater than in the "fluency" games, Hacienda involves

a constant, ongoing process of reflection. Since the game presents situations and people taken from daily life, connections between the game and real life are immediately drawn by participants. The connection is so close that the reflection begins at the individual level as the game proceeds; comments like "así es" (that's the way it is) and "claro!" (of course!) are common during the game, as are anecdotes between participants about game situations that have happened to them in daily experience.

It is this congruence between the experience of the game and daily situations that we have observed to be the most solid base for reflection that a nonformal game can offer. By allowing the peasant to "live" a situation under conditions that are "real" but at the same time enjoyable, low risk, and comfortable, Hacienda virtually forces him/her to compare those conditions with ones he/she faces on a regular basis. It gives the campesino a margin of objectivity towards rural life that he/she rarely if ever is allowed, and thus the chance to begin to analyze things with an eye towards altering them.

We have seen that this change in perception towards situations once considered static is most marked vis-a-vis authority figures. As the participants relate what happened with the priest or lawyer or hacienda owner roles during the game, they begin to manifest their dissatisfaction with these authorities. It is at this point that a facilitator is most necessary in order to encourage participants to go beyond a simple venting of frustrations to a deeper analysis of the causes for such roles (which campensinos often discover lie in themselves and their reluctance to assert themselves as individuals or as a group).

Hacienda offers a multiplicity of such opportunities for reflection--

formation of a cooperative, buying and selling products, loans from the bank, etc. How each is developed in the discussion that follows the game is dependent on how important it was during the game, how important a concern it is in the community at the time, and on the skill of the facilitator. Because of this range of possibilities, Hacienda is a much more flexible reflective tool than are the fluency games we have evaluated.

The game should aid in the development of communication skills. Hacienda cannot be played without constant interaction between the participants, most of which is at the verbal level. People learn to express their thoughts to other peasants and, through simulation, to local authority figures. We have observed that as the groups become more familiar with the game, and play becomes more sophisticated, the level of communication skills needed rises accordingly; the participants have to order and process their thoughts, learning to express themselves at different levels (conceptual, practical) and in different situations. It is not an automatic skill, but its partial acquisition is inherent in the way the game is designed.

This is the only one of the four evaluated games that encourages the development of both individual and group communication processes. Participants' experiences during the game are dependent upon the actions and thoughts of other participants; people are immediately forced into dealing with others. Likewise, the game as a whole is an experience campesinos live as a group; for days afterwards, the villagers will relate funny incidents that took place during the game or how this or that person played their role. The game was designed by the UMass project to foster a certain class awareness among peasants and to make them speak out and act together. We have seen in numerous villages that just such an effect has begun to take place through the use of Hacienda.

Meeting the Learning Needs of the Participants in the Games: Hacienda, Syllable Dice, Syllable Cards, Number Bingo

If the experience of this evaluation and that of the UMass NFE project tells us anything at all about education in rural Ecuador, it is this: that the learning needs of rural communities, to say nothing of the individual people who live there, are in no way uniform. Nor do all, or even a majority, of adult peasants need basic literacy programs.

No range of prepared (however, "open-ended") nonformal learning materials can hope to cover all the needs of one community, much less those of all the villages in Ecuador. Each of the four evaluated games, as well as the many other UMass games not included in this study, have specific learning objectives built into them, be they literacy, numeracy skills, or cooperativism. This constitutes, no matter how softly we tread here, an imposition from outside the community. The "learning needs" are defined by those in charge of this and every other program and in no way by the people who live in the rural areas. In no community of the evaluation sample, nor in any of the eight communities we studied from the UMass project sample, had campesinos substantially modified the nonformal games brought there by outside agencies, much less gone on to invent ones that met learning needs as they are locally defined. This in no way indicates that peasants are incapable of designing their own curricula and materials, but rather that manufactured games (even those with substantial peasant input at the beginning) sustain the very dependency on outside ideas that the UMass project had hoped to break.

The flexibility of these nonformal games we have evaluated is in the end a limited one: they can be used in a variety of manners, but all of which lead to externally predetermined learning goals. Hacienda

is broader in that several learning possibilities are available--math skills, improved reading, communications skills. But Hacienda too aims at one overall objective: getting peasants to cooperate because they "need" to.

It is neither "wrong" nor dishonest for agencies to set learning and motivational objectives for their educational materials. But it most certainly is if they claim that the participant is in control of his or her own learning.

The four evaluated educational materials produced by the UMass project each contain characteristics that lend themselves to the fulfillment of the project's objectives for them. But in nearly every case there is the need for a person well trained in their use to help the participant group take full advantage of those possibilities. We have found that the learning intent of each of the games, as well as the physical design for bringing it about, prevent the games from being, as is commonly claimed, either self-directing or self-generating.

QUESTION 6: WHAT ARE THE CHARACTERISTICS OF MATERIALS THAT WORK WELL WITH LEARNERS OF WHAT CHARACTERISTICS? WHAT ARE THE BEST MATCHINGS?

In order to provide information concerning the relationships between antecedent conditions and the effects of each of the NFE games on the development of literacy, numerical skills, and critical consciousness, bivariate correlation coefficients were computed between variables reflecting antecedent conditions and gains effected by each of the games on literacy, numerical skills, and critical consciousness. These analyses were performed separately for groups of individuals in communities where each of the treatments was instituted by the evaluation staff.

In order to avoid capitalizing on chance results, only coefficients at least beyond the .05 level of significance will be discussed.

Antecedent conditions and the effects of Syllable Cards. Two correlation matrices were computed, one including all experimental villagers in the three communities (Yayuliguí, Pilchipamba, San Pablo) in which Syllable Cards was introduced by the evaluation staff as the first NFE game and one for all experimental villagers in the two communities (El Calvario and Palmar) in which the evaluation staff introduced Syllable Cards as the second NFE game.

Where Syllable Cards was played as the first game, there were greater gains in Reading and in Functional Writing as a result of playing this NFE game among villagers who had lower formal educational attainment levels ($r = -.42$, $p < .004$ and $r = -.48$, $p < .001$, respectively; $N = 39$). There were greater gains in Functional Writing among villagers who had participated in adult literacy classes ($r = .34$, $p < .02$; $N = 38$).

There were greater gains in Critical Consciousness among villagers who were younger ($r$ = -.30, $p$ <.03), who lived in residences with a greater number of persons ($r$ = .27, $p$ <.05), and who were members of community organizations ($r$ = .32, $p$ <.04) ($N$ = 39).

Where Syllable Cards was played as the second game, there resulted greater gains in Reading for those villagers who were older ($r$ = .42, $p$ <.04), female ($r$ = .69, $p$ <.001), who had lower occupational status ($r$ = -.47, $p$ <.02), who tended to be white rather than mestizo or mestizo rather than Indian ($r$ = .68, $p$ <.001), who lived in residences with a greater number of persons ($r$ = .57, $p$ <.01), and who were leaders in community organizations ($r$ = .43, $p$ <.04) ($N$ = 19).

A greater increase in Functional Writing took place among villagers who lived in residences with fewer people ($r$ = -.46, $p$ <.02), who watched less t.v. ($r$ = -.42, $p$ <.04), went to the movies less ($r$ = -.46, $p$ .02), and read fewer newspapers ($r$ = -.47, $p$ .02) ($N$ = 19). Generally, the greatest increases in Functional Writing scores were experienced by those who received the fewest educational stimuli (television, newspapers, other people, etc.).

There was a greater increase in Critical Consciousness among villagers who read more newspapers ($r$ = .47, $p$ <.02) and magazines ($r$ = .54, $p$ <.01), who were leaders of community organizations ($r$ = .67, $p$ <.002) ($N$ = 19), and who lived in residences with a greater number of persons ($r$ = .44, $p$ <.03) ($N$ = 19). Generally, a pattern seems to evolve of the greatest gains being made by those who are active recipients of educational stimuli and involved in the community organizational structure. In part this may be attributable to the fact that individuals reached criterion in some communities more than in others, and thus the greater gains could be attained by those at the lower educational continuum.

There were greater increases in Math (unintended) as a result of the Syllable Cards sessions among villagers who had attained lower levels of formal education ($r$ = -.48, $p$ <.02, $N$ = 18).

Antecedent conditions and the effects of Syllable Dice. Two correlation matrices were computed, one including all experimental villagers in the two communities (San Francisco and Cadeate) where Syllable Dice was introduced by the evaluation staff as the first and only NFE game and one for all experimental villagers in the five communities (Hipolongo, Yayuliguí, Pilchipamba, San Pablo, and Dos Mangas) in which the evaluation staff introduced Syllable Dice as the second NFE game.

Where Syllable Dice was played as the first and only game, there were greater gains in Reading among villagers who watched more t.v. ($r$ = .60, $p$ <.001) and read more newspapers ($r$ = .34, $p$ <.05) ($N$ = 25) before playing the NFE game. There were greater gains in Functional and in Standard Writing among those who lived in residences with a larger number of persons ($r$ = .37, $p$ <.03, and $r$ = .37, $p$ <.03, respectively) ($N$ = 25).

There were greater gains in Critical Consciousness among villagers who went to the movies more, prior to playing the NFE games ($r$ = .35, $p$ <.04, $N$ = 25).

Where Syllable Dice was played as the second NFE game, there were greater gains in Reading as a result of playing this NFE game among villagers who tended to be white rather than mestizo or mestizo rather than Indian ($r$ = .23, $p$ <.05) and who lived in residences with a larger number of persons ($r$ = .28, $p$ <.02) ($N$ = 53).

There were greater gains in Standard Writing among villagers who read fewer newspapers ($r$ = -.27, $p$ <.02) and magazines (-.40, $p$ <.001)

before the treatment ($N$ = 53). In part these gains may be attributable to the previous lack of exposure to standard Spanish materials.

There were greater increases in Critical Consciousness among villagers who had had more formal education ($r$ = .26, $p$ <.03), who lived in residences with a smaller number of persons ($r$ = -.26, $p$ <.03) and who watched less television before the treatment ($r$ = -.27, $p$ <.02) ($N$ = 53). The one puzzling bit of data in this particular analysis is the negative relationship between Critical Consciousness and the number of people living in the residence. The finding with respect to television can probably be explained by the very low frequency of usage in the evaluation communities. The general finding with respect to Critical Consciousness relative to a higher positive relationship among those with more formal education corresponds with findings in this variable as a result of other treatments.

There were greater gains (unintended) in Math as a result of the Syllable Dice sessions among villagers who were younger ($r$ = -.27, $p$ <.03), male ($r$ = -.41, $p$ <.001), of higher occupational status ($r$ = .26, $p$ <.03), higher formal educational attainment ($r$ = .24, $p$ <.04), who had attended adult literacy classes before the treatment ($r$ = .23, $p$ <.05), who had gone more to the movies before the treatment ($r$ = .25, $p$ <.04), and who were members of community organizations ($r$ = .24, $p$ <.04) ($N$ = 53).

Antecedent conditions and the effects of Number Bingo. A correlation matrix was computed including all experimental cases in the three communities where the evaluation staff introduced number Bingo as the second NFE game (Rumipamba, Asunción, Barcelona).

There were greater gains in numerical ability as a result of the Number Bingo sessions among villagers who were younger ($r$ = -.26, $p$ <.05), who were female ($r$ = .34, $p$ <.01), who had fewer years of formal education

($r$ = -.41, $p$ < .01), and who were not members of community organizations ($r$ = -.33, $p$ < .02) ($n$ = 42). In essence, the more deprived individuals gained the most from playing this NFE game.

There were greater gains in Critical Consciousness as a result of the Number Bingo sessions among villagers who were younger ($r$ = -.29, $p$ < .03), who had a lower level of formal educational attainment ($r$ = -.29, $p$ < .03), and who attended more movies before the treatment ($r$ = .26, $p$ < .05) ($N$ = 42).

There were greater gains (unintended) in Functional Writing as a result of the Number Bingo sessions among villagers who had lower levels of formal education ($r$ = -.33, $p$ < .02), who had attended adult literacy classes ($r$ = .29, $p$ < .03), and who were not members of community organizations ($r$ = -.35, $p$ < .01) ($N$ = 42).

Antecedent conditions and the effects of Hacienda. A correlation matrix was computed including all experimental cases in the eight communities where the evaluation staff introduced Hacienda as the first or only NFE game (Rumipamba, Hipolongo, El Calvario, Asunción, Miraflores, Palmar, Dos Mangas, and Barcelona).

There were greater gains in Critical Consciousness as a result of playing Hacienda among villagers who were younger ($r$ = -.23, $p$ < .01), who were from lower occupational levels ($r$ = -.18, $p$ < .03), who had attained more formal education ($r$ = .17, $p$ < .04), and who lived in residences with a larger number of persons ($r$ = .18, $p$ < .04) ($N$ = 105). This seems to suggest that those individuals who appear to be more socioeconomically dissatisfied made the greatest gains in Critical Consciousness.

There were greater gains in Math as a result of playing Hacienda among villagers who tended to speak more Spanish and less Quichua ($r$ = -.32, $p < .001$) ($N$ = 105) and who listened to the radio more before the treatment ($r$ = .44, $p < .001$) ($N$ = 51).

There were greater gains in Reading as a result of playing Hacienda among villagers with a higher level of formal education ($r$ = .28, $p < .01$, $N$ = 50), who tended to be Indian rather than mestizo or mestizo rather than white ($r$ = -.25, $p < .04$, $N$ = 51), who lived in residences with a smaller number of persons ($r$ = -.50, $p < .001$, $N$ = 51), and who were members of community organizations ($r$ = .23, $p < .05$, $N$ = 51). The finding relative to gains in Reading related to racial characteristics probably is attributable to the relatively low frequency of Indians and whites in this sample; most of the sample was mestizo.

## Summary and Conclusions

Syllable Cards was relatively more effective in increasing reading level among villagers who had lower levels of formal education, who were older, female, white rather than mestizo or mestizo rather than Indian, had lower occupational status, lived in residences with a greater number of persons, and were leaders of community organizations.

Syllable Cards was relatively more effective in increasing writing skills among villagers who had higher levels of formal education, who had participated in adult literacy classes, who lived in residences with a larger number of persons, and who watched less TV, movies, and read fewer newspapers prior to the treatment.

Syllable Cards sessions were relatively more effective in increasing the level of critical consciousness among villagers who were younger,

who lived in residences with a larger number of persons, who were leaders and members of community organizations, and who read more newspapers and magazines prior to the treatment.

Syllable Dice was relatively more effective in increasing reading level among villagers who were white rather than mestizo or mestizo rather than Indian, who watched more TV and read more newspapers prior to the treatment, and who lived in residences with a large number of persons.

Syllable Dice was relatively more effective in increasing standard writing skills among villagers who read fewer newspapers and magazines prior to the treatment and who lived in residences with a larger number of persons.

Syllable Dice sessions were relatively more effective in increasing critical consciousness level among villagers with higher levels of formal education, who went more to the movies but watched less TV prior to the treatment, and who lived in residences with a smaller number of persons.

For villagers who had lower levels of formal educational attainment, Number Bingo was relatively more effective in increasing numerical skills, critical consciousness, and writing skills. For villagers who were younger, Number Bingo was relatively more effective in increasing numerical skills and critical consciousness. For villagers who were not members of community organizations, Number Bingo was relatively more effective in increasing numerical and writing skills.

Also, Number Bingo was relatively more effective in increasing numerical skills among females.

Number Bingo was relatively more effective in increasing critical consciousness among less formally educated villagers and among those who went more to the movies prior to the treatment.

The effects of Hacienda on reading and on critical consciousness were greater among villagers with higher levels of formal education.

Also, the effects of Hacienda on increasing critical consciousness were greater among villagers who were younger, who had lower occupational status, and who lived in residences with a larger number of persons.

The effects of Hacienda on increasing reading skills were greater among villagers who were Indian rather than mestizo or white or mestizo rather than white, who lived in residences with a smaller number of persons, and who were members of community organizations.

The effects of Hacienda on increasing numerical skills were relatively stronger among villagers who spoke Spanish rather than Quichua and who listened to the radio prior to the treatment.

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Several relationships are common to two or more of the NFE games: Hacienda, Number Bingo, and Syllable Cards had greater effects on increasing critical consciousness among villagers who were younger. Both Hacienda and Syllable Dice had greater effects on increasing critical consciousness among villagers who were relatively more educated formally. Both Hacienda and Syllable Cards were more effective in increasing critical consciousness among villagers who lived in residences with a larger number of persons.

Both Syllable Cards and Syllable Dice were relatively more effective in increasing reading level among villagers who were white rather than mestizo or Indian, or mestizo rather than Indian, and who lived in households with a larger number of persons. Both Syllable Cards and

Syllable Dice were relatively more effective in increasing writing performance among villagers who read fewer newspapers prior to the treatment. Both Number Bingo and Syllable Dice were more effective in increasing numerical skill among villagers who were younger. And both Number Bingo and Syllable Cards were relatively more effective in increasing numerical skills among villagers who had a lower level of formal education.

## QUESTION 7: WHAT FACILITATOR/TEACHER VARIABLES HAVE AFFECTED THE RELATIVE EFFECTIVENESS OF VARIOUS MATERIALS?

The evaluation reported herein has made clear in responses to other questions in this Final Report that the role of the facilitator is considered to be crucial to the ultimate effectiveness of the various NFE games developed by the UMass project. Our observations of the facilitator-games model at work under a variety of conditions led us to outline those broad personal and socioeconomic characteristics an "ideal" facilitator should have. We pointed out in that discussion the greater importance of the personal characteristics as opposed to the specifically demographic ones (i.e., age, sex, background) in the effective overall implementation of the non-formal model. (See Question 12)

Here we wish to briefly focus on those facilitator variables that we observed (through site visits, interviews with community participants, and the learning-consciousness outcomes of the game materials as discussed in Questions 4 and 9) to have had the most direct influence on the effectiveness of the four games we evaluated. Effectiveness in this sense refers to the ability of the games to hold the participants' interest and then to develop both functional skills and changes in individual perception (critical consciousness) in the person who plays them.

Facilitator's level of formal schooling. We were unable to trace any connection between a facilitator's level of education and his/her effective use of the games as means of attracting and holding a participant group's interest in this type of educational program. Nor did we find such a connection between educational level and a facilitator's ability to use

the games as a tool for the development of critical consciousness. The evaluation field workers ranged in education from a grade school (six years) graduate to a university graduate (17 years of schooling), while the active UMass-trained facilitators averaged between four and six years of primary schooling. Dependent, of course, on other variables discussed below, we found that formal education--either few years or many--was not an important consideration in either arousing group interest or the development of critical consciousness, for any of the evaluated games.

Where the evaluation did find a significant relationship, however, was between a facilitator's education and his/her ability to use the games as skill-transfer tools. Specifically, the lower the level of the facilitator's schooling, the less likelihood of their serving as a real "educational resource" for a rural community. This was found to be especially true for Hacienda, because of the game's more subtle, complex learning possibilities.

Several examples will serve to illustrate this point. In Miraflores (an evaluation community), where Hacienda was played with a participant group demonstrating very low initial literacy and numeracy scores on the pretest measurement, the facilitator was a recent grade school graduate (six years) whose own reading and writing skills could best be described as "functional." She was unable to take advantage of Hacienda's specific learning opportunities (i.e., improved Reading, Math) for the peasant group. The group recognized this, and implicitly rejected the sessions as anything more than entertaining discussion meetings. In a similar community (Baldalupaxi) of the same area of Chimborazo province, a UMass facilitator with the same educational level likewise felt inadequate when faced with the task of "literizing" a participant group; he used Hacienda

but twice, and ultimately relied on standard school texts because of his greater assurance with them. It was in those evaluation communities (see Table III. 4.4) where the facilitator was at least a high school graduate that Hacienda demonstrated the most visible learning gains among participants. This is more striking when one considers that these particular participant groups already evinced levels of literacy and numeracy skills that neared the levels of the games themselves. We strongly feel that the facilitators' higher level of education allowed them to more effectively identify and manipulate the learning possibilities contained in Hacienda, and to use those possibilities with a broader range of participants.

The three evaluated fluency (skill) games were somewhat less bound to this educational criterion. We found them all to be very basic one-dimensional learning tools, easily used by facilitators of even few years' schooling. An element that cannot be quantified, however, we saw as influencing the facilitators' effective use of the fluency games--the participant groups' perception of the facilitator as an educational resource. Our interviews and site visits revealed a participant preference for facilitators of greater educational background because of the feeling that such people could teach the peasant more things. This, of course, was not necessarily borne out by the quantitative findings for the fluency games (see Tables III. 4.1, 4.2, 4.3); significant learning gains here were more the result of certain games-community factors than the individual facilitator.

Ability to use the games in a variety of ways. The UCLA evaluation encountered two recurring problems with the NFE games in both evaluation

communities and UMass-impacted communities. The first problem was the already high cognitive and/or educational level of many participants in relation to the learning objectives of the games, while the second was the tendency of several of the games (especially Number Bingo and Syllable Cards) to appear dull or limited after relatively few playings. We observed time and again that a facilitator's ability to devise new modes for playing the games, or his/her ability to motivate the group to do so, was a key factor in maintaining participant interest in the program. This, of course, is not necessarily reflected in the learning and consciousness gains discussed in Questions 4 and 9. Nor do the criterion-referenced test instruments employed always record possible learning gains above and beyond the specific objectives of the game(s).

For example, in Pilchipamba the participant group showed greater-than-average indices of communication outside the community, and literacy skills; when Syllable Cards were introduced as the first game there was a good deal of grumbling about how these were "below" them. The facilitator suggested several more complicated ways of playing (i.e., formation of long sentences, rhymes, a kind of syllable scrabble) which challenged them at their own level; subsequent sessions were characterized by increasingly complex playing modes, and at least one new way of playing each time, all invented by the participants.

Likewise, in Barcelona the evaluation group felt not at all challenged by Number Bingo's extremely simple calculations. Seeing this, the facilitator used the game as a "warm-up" at each session for more complex, varied participant-suggested math drills. In this way, the game sessions continued to attract people, at the same time serving a useful educational

end.

In contrast, the facilitator in Yayuligui felt that the Dice and Cards were too constraining, but did nothing to expand upon them. His negative attitude towards the games was obvious to the participants, who deserted in great numbers. Only those individuals of very few years of schooling remained, and they eventually took it upon themselves to invent new playing modes to fit their own needs and desires.

We found no specific learning or consciousness "benefit" in the greater originality and innovativeness of a facilitator, but we did find that the continued participant interest generated by such adaptability led to the possibility of sessions expanding to meet other participant needs beyond those of the four NFE games.

Identification with the rural community. The Ecuadorian campesino is a keen observer of other people's reactions and emotions. He may accept, on the surface, an individual (and the program that person brings) who evidences dislike of the community or its residents, but will react to that negative feeling, however it may be disguised, by withdrawing either physically or psychologically. Likewise, an individual who demonstrates a real interest and enjoyment in working in rural villages is usually accorded collaboration and trust. This is the major advantage of the facilitator who is native to the community where he/she will work; people know them beforehand and have already assessed their commitment to the community. It is a confidence that the outside facilitator must--and can--earn.

We observed in the UMass project communities as well as the evaluation communities that those facilitators who most closely identified with the villages in which they worked were more likely to maintain participant

interest in the program. Although no accurate attendance figures for the UMass villages are available, our interviews in Puñachísac and Tutupala indicated that it was (among other things) this quality in the individual facilitators that most acted to keep participation high over a period of several months, despite intervening personal and program problems. The same can be said for the evaluation communities of Dos Mangas, Barcelona, and Asunción.

It was in those communities--Olón, San Andrés, Miraflores, Baldalupaxí, and others--where the facilitator was either too busy with outside activities or obviously uncomfortable in rural villages among campesinos that the non-formal model encountered the greatest difficulty in being implemented. In the case of the evaluation communities we were able to observe the entire frustrating process in action--initial facilitator discomfort affecting the participant group's reaction toward the program, which in turn fed the facilitator's uneasiness and negative outlook, finally culminating in large-scale participant desertion or the facilitator's leaving the program.

We could, of course, trace no direct link between learning gains in a group and the facilitator's outlook on his/her work. Rather, the benefit to the program (indeed, to everyone connected with it) of a facilitator's close sense of identification with a community was in his/her ability and desire to use the materials effectively (i.e., towards the needs of the learning group). It is no coincidence that precisely those facilitators who most identified with their work were also those who showed the greatest ability to attract participants and to use the games in a wide variety of beneficial ways. We found this to be true regardless of the specific NFE game(s) being used.

Power of conceptualization. The ability of a facilitator to see beyond the specific task at hand (i.e., formation of words, calling out numbers, etc.) in order to apply the concept behind it to the daily lives of the participants was the individual variable that most strongly affected the NFE games' impact on the development of critical consciousness.

The power of conceptualization is a skill that can be developed during the training of facilitators, through a careful introduction to the games and the theory on which they are based. But its implementation in rural communities is dependent on a particular personal style and experience that a facilitator will most likely have developed over time. That is, the effective use of the games requires that the facilitator be able to transfer to the participant this skill in an open, non-directive way so that the participant can him/herself later take on the task of selecting educational materials that best suit their own needs.

Significantly, the two communities (Dos Mangas and El Calvario) where the test results indicated gains in critical consciousness through the use of Hacienda (see Table III. 9.1) were those whose evaluation facilitators were the most capable of relating the experiences of the game to problems of the community. One of those facilitators (in El Calvario) was himself a campesino, while the other was a university student from Quito.

In those communities (Palmar, San Pablo, Hipolongo) where the test results indicated gains in critical consciousness through the use of one of the fluency games (see Tables III. 9.2 and III. 9.3), we had facilitators with previous rural experience. This experience was evident in the "reflection" periods following game use, as the discussions centered on specific words that had been formed and their relation to rural life.

This does not prove, by any means, that previous rural experience

or conceptual skills in a facilitator will guarantee that an NFE game show "positive" results. It does indicate, however, that such a skill is one very crucial factor among others.

In attempting to identify facilitator variables that affect the NFE games' effectiveness, we encounter the same complex set of interrelationships between the individual, the community, and the game that make so difficult (if not impossible) definitive conclusions about this or that factor. Concerning the facilitators, we found that only their educational level could be said to be a specific indicator of possible game effectiveness, and even here only as the game touches upon functional skill transfer. The other variables we have discussed here and in Question 12 (institutional setting, economic support, training, etc.) are equally important, but are variables whose definite measurable impact often cannot be determined on a short-term basis. We found these factors, as well as the more specific variables discussed here, to be of nearly equal influence across all four evaluated games.

QUESTION 8: WHAT ARE THE MOTIVATIONAL ATTRIBUTES OF EACH OF THE FOUR EDUCATIONAL GAMES SELECTED FOR IN-DEPTH EXPERIMENTAL ANALYSIS IN THE EVALUATION?

The UMass NFE project laid out several general motivational objectives for their educational games over the two years during which the materials were being developed. The evaluation examined those objectives under field conditions, and as a result of that investigation drew up a revised and expanded list of optimal motivational characteristics for non-formal education games (outlined in Question #12).

For the purpose of this discussion the optimal motivational characteristics have been grouped under three broad headings detailed below. Then, each of the games evaluated by UCLA--Syllable Dice, Syllable Cards, Number Bingo, and Hacienda--is examined to identify their motivational attributes as they appear in the game itself, and as they appeared when the game was implemented in rural Ecuadorian villages.

1) The games should spark and maintain the individual's interest.

The initial interest can be aroused by the game's physical novelty or by a content that is readily perceived by the villager as potentially useful in his/her present familial, social, or economic situation. This characteristic greatly aids the facilitator's effort to gain community acceptance for him/herself and the program, and it helps to begin the formation of a local learning/reflection group.

An important aspect of this interest is the perception of the game as recreational. We have seen that if campesinos are given the chance to participate in relaxed, enjoyable activities they begin to lose much of their fear towards new experiences and new people. For the facilitator, such an atmosphere helps establish a feeling of easy confidence within the local group and between it and the facilitator. It has been found to create

a positive learning atmosphere as well, since peasants can participate without feeling that they are being judged or pressured.

For these games to be able to present the stimulus which might effect the cognitive and perceptual changes they purport to develop, the participant must feel motivated to attend fairly regularly over a minimum period of several weeks. Since it is a voluntary program with no built-in material rewards, to a large extent the motivation must be generated by the intrinsic attributes of the games themselves. We have observed two effective mechanisms for accomplishing this. First, the context of the game should offer new learning experiences to the participant even after numerous re-playings. Second, its physical format should allow for several means of employing the material to obtain different learning outcomes (i.e., materials that can be used with different educational groups).

2) The games should promote the active participation of the peasant.

The games should provide physical means for the active participation of everyone who attends the learning/reflection sessions in order that their education be in great part the result of their own doing. Non-formal education is intended to avoid precisely that format which places the "teacher" in an exalted position and the "student" in a passive, receptive role. In this way, it is hoped, the learner will seek and obtain the information and skills he/she really needs, and thus will be able to apply that learning directly to the daily situations they face.

Active participation, we observed, also leads to a greater sense of ownership towards the learning sessions and to a greater peasant interest in maintaining them. Likewise, it appears to help in fostering a sense of self-confidence and self-worth in the participant. This self-esteem seems to be the base on which new values and viewpoints can be developed, since they lose their threatening aspects for a person who feels confident of him/herself and their community.

3) The games should act to integrate the group and break down individual inhibitions.

One of the largest barriers to effective action by Ecuadorian peasants is the disunity that characterizes their relations with other communities and often with their own neighbors. If the larger developmental goals of this type of non-formal education are to be realized, then the games must first act to create a feeling of group-ness among the participants. In part, it is a physical mechanism, wherein games should be designed to be played by a group rather than individually and competitively. More fundamental, however, is that the content of the game focus on issues or problems (i.e., literacy, cooperativism, etc.) that are common to the participants, and in this way help create a sense of unity through shared experience.

It seems, too, that personal development might be just as important to the creation of a change-oriented community group. The games can contribute greatly to this process by offering the individual a series of elements (ideas, activities, roles, atmosphere) that allow him/her to lose the fear of doing things for which they have the potential ability (to speak out, to act as group leaders, to participate in decisions, etc.) but in which they generally have had little practice. In this way, we have seen a number of campesinos overcome their inhibitions and begin to function as open, whole members of the community.

Syllable Dice

The game should spark and maintain the individual's interest. The novelty of dice with letters instead of numbers does create a good deal of interest in rural communities. We noticed that because of their simple physical nature and simple content, the interest is manifested almost equally among men and women, old and young, literate and just barely so.

As a recreational diversion, the Dice are able to maintain participant interest almost indefinitely, although not on a daily use basis. As a

learning tool, however, the Dice are limited in both scope and depth; interest was seen to drop off among those participants with more than four years of schooling, while remaining high among those who showed greater difficulty in spelling and vocabulary. Women seemed to find them enjoyable and useful, but rarely participated actively in the sessions because of household duties or cultural barriers. Primary school students found them fascinating, both as a novel variation on their textbooks and as a means of showing off their mental agility to adults.

The Syllable Dice apparently arouse a kind of "teaching" interest in certain people who already possess basic literacy skills. The Dice are a tool easy to manipulate, easy to transport, and easy to use as an individual teaching device. Participants in several communities told of taking the Dice home after a session and playing them during the week with family members unable to attend. This "multiplier" effect (peasant teaching peasant) was much greater with the Syllable Dice than any of the other evaluated games.

All the evaluation facilitators who used the Dice, as well as a few of the UMass project facilitators, indicated that this game was the one that created the most serious learning interest in participant groups. People who would come out to watch Hacienda or to play Bingo often found the Dice dull; but there always existed a small group of people who attended regularly in order to play them again and again. When asked why, orthography, "greater vocabulary," and the fascination of continually forming words where none existed were the principal answers.

The same facilitators said that the Dice were not the best game with which to begin the non-formal program because they did not attract the broad, enthusiastic attention that Hacienda might. But for continuing that

interest, especially in a group characterized by low educational level and high personal motivation towards self-improvement, the Dice were excellent.

The game should promote the participation of the peasant. As it is usually played--in a group--the Dice are highly individualistic; everyone can observe, but only one or two people actively participate at any given moment. This takes away much of the dynamism in the game and eventually cripples the "group experience" concept on which the reflection is most beneficially based. Likewise, mere observation does not seem to have the learning effects on an individual that actual manipulation of the Dice does. We found that the ideal group size for the use of the fourteen-dice set was between five and eight individuals; although not everyone is handling the dice at the same time, there appears to be a greater sense of participation with this number of people. There are not the distractions that present themselves in larger groups, people seem more willing to give and receive advice on which words should be formed and how, and there is the greater possibility of forging a group experience.

Large participant groups for Dice also present a serious problem for the illiterate. Unable to read all the symbols or to easily conceptualize words out of loose syllables, such persons feel inhibited by the emphasis on speed and accuracy most groups give this game. In at least one community (Dos Mangas) two illiterates attended faithfully, but participated only once--the first session. After that they merely observed.

Syllable Dice is the game that allows for the greatest variation in manipulation. Participant groups (especially in Yayuligui and Pilchipamba) invented new ways to play at each game session--the group working as a whole, small groups working competitively, individuals forming words against

a time limit, sequential word formation (a kind of scrabble, where one player builds on a previous player's syllable), place names only, etc. This creative process allowed the facilitators to step back and turn the sessions over to the groups, which eventually designed game variations around the different learning objectives they set for themselves.

In short, the relatively simple nature of the Dice and the variations on its play motivate individuals of medium-low educational levels to participate, but often on a highly individualistic basis. Other adults of either high or low educational attainments show little inclination to participate actively over a long period of time.

The game should act to integrate the group and break down individual inhibitions. The dice are almost always taken as a competitive game; though often played without specific "winners" or "losers" there is usually the strong atmosphere of individual performance. During play itself we observed that the dynamics of the Dice act to create inhibitions rather than eliminate them; people feel put on the spot as "their turn" draws near and they will have to "perform" in front of their companions. This is especially true for illiterates; if they attend at all it is strictly to observe. There generally develops a marked division within the participant group between those who are quick and confident and those who are not.

In several communities (Yayuliguí, Hipolongo, San Pablo) participants observed this trend and tried to create playing modes that would act towards some level of cooperation: the whole group acting as a team, or several smaller teams, or the group aiding each individual as he worked to put words together. These generally resulted in confusion and disorder; there was not a great deal of cooperation within the teams, as each player became engrossed in their own word,and even less cooperation between teams.

nor did individuals feel that everyone else's comments, however well intended, did anything but add to the pressure. In other communities a highly competitive mode (e.g., working against a time limit) was favored. In general, however, most groups tended to prefer a kind of low-level individual or team competition, with a good amount of inter-personal aid allowed.

We found the reflection period to be the only stage of the total game process where a facilitator might be able to forge a sense of group experience out of the atomized, competitive nature of the Syllable Dice. We could find no adequate means other than an individual-to-individual method of using the Dice to foster a breakdown in individual inhibitions, especially among illiterates.

Syllable Cards (Rummy)

The game should spark and maintain the individual's interest. The great popularity of card games all over rural Ecuador, plus the novelty of seeing them with letters instead of numbers, acted to create a high initial interest in communities where the game was used. The interest tended to be highest among men (who most often play cards) and the young; but women too showed a high initial interest, perhaps because of the chance to use a diversion rarely if ever open to them. As with the Syllable Dice, interest soon dropped off among participants with several years of primary schooling since the possible word combinations are of a simple nature; female participation dropped off as well, in part because of cultural barriers against their engagement in overwhelmingly "male" activities. Yet the cards appeared to maintain a slightly higher interest over time than did the Dice; according to participants, this was due to the greater challenge of the cards (i.e., many more possible words than the Dice).

The Cards were thought of in the community groups as educational more than entertaining; diversion was much easier with regular, numbered card decks. Thus, we noted a lower replay frequency of this game when the facilitator was not present.

The facilitators reported that long-term interest in the Syllable Cards was difficult to maintain. It appeared that many people, especially adult males, could not take seriously a game that so closely resembled a form of entertainment that in rural areas was definitely linked to weekend drinking patterns. The presence of the small numbers in the corner of each card only reinforced this opinion. In no case would any of the facilitators recommend Syllable Cards as the best game with which to begin implementation of a non-formal project; rather, it seemed to serve a more useful purpose as a second or third game in a series, when the participant group had reduced itself to those individuals more concerned with serious learning.

The game should promote the participation of the peasant. We observed that the 80-card deck allows a group size of between one person playing alone and ten or twelve playing together. Since the game is usually played like rummy (i.e., cards dealt out to all the participants), there is active, simultaneous participation by everyone involved. This means that the playing style is even more individualistic than with the Dice, with everyone concentrating on his/her own hand; but it also means that less assertive people can play since they are never individually "on the spot" in front of their neighbors. We especially noted this phenomenon in the few communities where women had participated initially; they would usually form their own groups away from the men and play at a speed more convenient to their skills.

Even more so than with the Dice, illiterates are unable to play with the Syllable Cards. First, the larger-than-average-sized cards must be held in the hand, and then the individual syllables read and put into word form. Nor does observation alone help since all the play goes on in each participant's hand; there is no chance for the illiterate to see the process of word formation, only the final product.

The physical possibilities for play are usually matched by the desire to do so. Adult males in particular were observed to take a keen interest in participating, in part because card playing in general is a very masculine activity in most rural areas. Youths were also highly motivated, not so much for learning as for the opportunity to participate in an adult activity (and do so on very favorable footing since they tended to be more educated).

In short, the Syllable Cards attract an initially wider participatory group than do the Dice, and they also offer a greater physical opportunity to participate directly. The nature and design of the game, however, severely limit the continued participation of two groups which might benefit greatly from its content: women and illiterates.

The game should act to integrate the group and break down individual inhibitions. As with the Syllable Dice, the cards are usually played competitively; there is a strong feeling of individual effort, even with the good deal of interpersonal help that is common when it is played in rural communities. People do not have to perform in front of the others as everyone is forming words at the same time, but this is not a completely positive feature here since there is no common experience shared by the entire group. Play is atomized. This is marked in communities like Yayuliguí or Palmar where the participant group as a whole was well above

the level of basic literacy. Individuals tend to concentrate on personal improvement, paying little attention to what others in the group may be doing. Sub-groupings of participants with lower levels of skill (especially women) in these two and other communities where the Cards were played show the opposite phenomenon: people watching the development of other participants' hands in order to get more ideas on their own set of syllables. In these latter groups interpersonal aid and suggestions are also greater.

The facilitator can act to help create a sense of groupness once the play has ended, but it would have to be based on the commonality of the words formed rather than an event which the people have experienced together. Nor was any truly cooperative mode of play discovered by the participants in any of the games-impacted communities.

As has been mentioned, the illiterate is eliminated from group forms of playing Syllable Cards because he/she lacks the most basic skills necessary. Nor is the illiterate motivated to participate in the sessions as an observer since there is really so little to watch.

Syllable Cards offer no concrete opportunities to break down individual inhibitions; indeed, the atomized, half-hidden way of playing card games allows the shy person to hide even further. Again, it is up to the facilitator to develop methods of bringing people out during the reflection period since the game does nothing toward this end.

Number Bingo

The game should spark and maintain the individual's interest. Rural people are generally familiar with Bingo and find it a comfortable, enjoyable means of recreation. It is an excellent means of "breaking the ice" in a group, and seems to satisfy the need of people to participate in games of chance. For these reasons, Number Bingo usually attracted an initially

large group of participants in each of the communities where it was evaluated. As with the other "fluency" games, people of all characteristics--men, women, the young, those with few years of education, and those with more--felt at ease with Bingo's simple format and content.

But it was this simplicity that made Bingo the most difficult of the four evaluated games in which to maintain participant interest. None of the multiplication problems involve the use of more than two digits at any one time, and the addition problems are likewise heavily weighted towards very easy computations. The participants expressed their satisfaction with Bingo as a form of light entertainment, and as a means of brushing up on rapidity of simple calculations. But for farmers who deal in three- and four- digit monetary figures when buying and selling hundreds of pounds of fertilizer or agricultural goods, we were repeatedly told that Bingo was quite inadequate as an educational tool. Several participant groups asked their facilitators to drop the game and move on to either more difficult math drills or a different game entirely.

The evaluation facilitators reported unanimously that beginning in a community with Bingo as the first game would have had negative repercussions on subsequent participant interest.

The games should promote the participation of the peasant. Because of its simplicity, Bingo eliminates the fear many peasants have of participating in group activities of skill. Also, it is the type of game that allows the individual to work alone, without the knowing glances of more highly educated neighbors. The intensity of involvement during a game of Bingo is impressive; everyone is fixed on their board as they listen to the problems being called out. The more advanced participants quickly compute the answers, then turn to see if anyone around them needs help. Even

illiterates participate freely; they work to identify on their boards the numbers called out or to compute the simpler problems.

We found Bingo to be a very flexible game in terms of participation; as few as three people can play it, and the only maximum is determined by the number of boards available.

Since it is a game that functions on chance as much as it does on skill, we noticed a curious phenomenon with Bingo: some people would continue to participate in the sessions even when complaining of the game's extreme simplicity and repetitiousness. Apparently, they could attend because it was entertainment, whereas attending sessions with Syllable Dice or Cards might give the impression that they needed to practice their reading and writing.

Bingo is definitely a participatory game, perhaps more so than the other three evaluated games, but it is a mute, dependent kind of participation. The player is alone with his/her board, listening to the person calling out problems, which are then solved by silent computation. Also, because the only possible variation on play is whether to play for horizontal or vertical rows, the peasant has less input, less control, less effective participation with Number Bingo.

The game should act to integrate the group and break down individual inhibitions. Number Bingo as a game activity in no way promotes group interaction. It is an individual task which relates each participant to the person who reads out the problem, and its play is marked by a fair amount of competition. Unlike Syllable Dice and Cards, there are no variations on playing styles that allow cooperation among smaller groups of people; there is simply no way to play it in which everyone is involved in the same action together.

We have found again and again with Number Bingo that the task of uniting the participant group falls on the facilitator and not on the game. It is he or she who must begin to draw the connections between the game and the daily experiences of the campesino. It is only then that a reflective process in which everyone participates can begin to take place.

Nor does Number Bingo in any way act to break down individual inhibitions. The participant is never required to reveal himself to others or to laugh at himself or to relate to others in a mutual fashion.

We saw that Bingo can be an enjoyable pastime that as an activity in itself motivates individual participants to personal improvement in slightly different aspects (speed, accuracy) of a single skill area. It serves to attract people to this kind of non-formal program, but has great trouble in maintaining that interest at anything higher than that of simple entertainment, much less forging a unified group of people.

Hacienda

The game should spark and maintain the individual's interest. Hacienda's physical appearance is novel in rural communities, where board games are unknown, and this attracts great attention. More important, however, in arousing the enormous interest and enthusiasm that has characterized Hacienda's introduction to rural villages has been the game's presentation of campesino reality--situations, products, personages with which the peasant can quickly and strongly identify.

It is an interest that, much more so than with the fluency (skill) games, is maintained over long periods of time. Three- and four-hour evening sessions playing Hacienda have not been uncommon--a most remarkable phenomenon in villages where people go to bed and get up very early.

And Hacienda is the game in UMass-impacted communities that people most identify as having been useful and entertaining; this after not having played it for up to two years.

There appear to be a number of reasons why Hacienda is able to maintain such great interest. It is a game in which situations and roles are rarely, if ever, repeated in exactly the same way. Through simulation of everyday personages, peasants are given the rare opportunity to laugh at themselves, and to criticize and ridicule authority figures--all within a safe, manageable context. Moreover, the game's many facets and elements allow situations and problems to be focused on from a variety of viewpoints. The campesino deals with them realistically in the game through the manipulation of money, figuring expenses and sales, taking into account the actions of others, etc.--all of which develop skills the peasant can see are immediately applicable to his own daily situation.

The facilitators unanimously agreed that Hacienda would be the best game with which to begin a non-formal model such as this, because of its great drawing power and the informal atmosphere it develops within the entire group, facilitator as well as participants.

The game should promote the participation of the peasant. Despite the great interest in Hacienda, there is often an initial problem in getting people to participate. The newness of the concept--role simulation--arouses some apprehension and shyness on the part of the peasants; it usually takes two or three playings before enough people in the group are found to fill all the roles quickly.

The design of the game acts to limit active participation to those people with identifiable roles. The number can vary, depending on how many personages the group deems necessary, but rarely exceeds 10 or 12--far

short of the number of people who turn out when Hacienda is played. Thus, there is a clear dividing line between those who are participating and those who are merely looking on. There is also a certain inflexibility in terms of a minimum number of players; at least five or six people are needed to begin play, so its use is limited to certain settings (i.e., meetings, large get-togethers). Hacienda is not an individual learning tool.

We found as well that participation within the game tends to be stratified, since not all the roles call for the same level of skills. The banker, for example, is pretty much limited to those peasants who are able to manipulate large sums of "money" and keep track of debts, all as the game goes on around him/her. Likewise, the lawyer role seems to require an outgoing, confident person; one who is withdrawn does not develop the personage, and its impact on the idea of authority and power is lost.

For those who are able to actively participate in a playing of Hacienda, the game offers a level of involvement none of the other evaluated games can match. The individual is constantly busy with his/her own affairs (money, land, problems) and is always drawn into those of other players. The rules and physical elements of Hacienda must often be explained by the facilitator during the course of play, but the direction and development of the game are almost entirely dependent on how the participants choose to play their roles.

Illiterates are able to participate in Hacienda because of the game's reliance on past experience and present imagination rather than on specific skills. Nevertheless, we observed that illiterates <u>do</u> have a great deal of trouble with the relatively large amount of written materials--deeds, cards,

the board itself--the game uses. This often causes frustration, but it also acts to bring other players to their aid.

We have repeatedly observed a disturbing phenomenon in the use of Hacienda: active, involved participation does not automatically foster a sense of possession towards the game. This despite its largely accurate reflection of daily rural life. Conversations with peasant participants immediately after the game sessions and later indicated that the game's complexity--rules, papers, spaces--sets them back; they feel, at least initially, inadequate to play without the presence of a facilitator. It is a feeling that takes a fair number of playings (about five to seven) to overcome; in a few communities (Hipolongo, Dos Mangas) participants have gone on to use the game among themselves, while in others the game is unfortunately set aside.

The game should act to integrate the group and break down individual inhibitions. The layout of Hacienda requires group interaction, and the content design (campesinos vs. hacienda owner and other authorities) acts upon that to forge a sense of group identity among the players. Many situations are presented where, to the outside observer, cooperative action is the obvious choice for the campesinos (as when faced with debts) but we have seen that, true to life, the peasants tend to play individualistically. For the first few sessions it is only upon review and reflection that the players see where they might have made a better--or at least different--choice. In later sessions the design of the game and the experience of each playing begin to come together, and one sees cooperatives being formed on a regular basis, peasants helping peasants and, rarely, an agrarian reform being carried out. Much more than the other three evaluated games, Hacienda acts to coalesce groups through shared experience--experience

taken from life and the experience of the game activity.

(Interestingly, we have indications in only a handful of communities--Sinchal, Palmar, Dos Mangas, Puñachísac--that some of the issues raised during Hacienda have been translated into concrete actions. In other communities we have seen where outside reality isn't taken into account during the game; village groups in San Antonio and El Calvario, where there are active, successful cooperatives, were very reluctant to form them in the game.)

In the long run, Hacienda also acts to break down the inhibitions many rural Ecuadorians have. At first, simulation, unfamiliar to peasants, may create inhibitions, but with more familiarity the individual finds he/she can act out frustrations and experiences in a non-threatening context. The atmosphere of excitement and chance during Hacienda is very contagious. The facilitators have observed that in every group which has played the game, there are at least three people who at the beginning stand back and say nothing at all; then they begin to comment on the play, eventually joining in the laughter and joking, and often end up volunteering to play after a few sessions. It appears that peasants find in role-playing a rewarding chance to express themselves in ways not possible in normal village life.

We found then, that the four evaluated UMass non-formal games,

1) all have approximately the same ability to arouse <u>initial</u> interest in a rural community, in large part because of their sheer novelty.

2) there is great variability as to whether they <u>maintain</u> the interest of a potential learning/reflection group. Interest in Number Bingo wanes quickly, but its entertainment value is highly regarded by villagers; the Syllable Dice and Cards are seen as somewhat more serious,

valuable learning tools, and interest tends to remain high among people of few years of schooling; Hacienda attracts and maintains great interest among all people because of its form, content, variability, and entertainment aspects.

3) all allow for active participation of the peasant, but to a different degree and quality. In Number Bingo people participate directly, but in a very dependent role. The two literacy games allow for much more participant ingenuity and direction, since the materials are comparatively dormant (i.e., their final shape depends on the participants' ability to arrange them). None of these three "fluency" games explicitly develops through participation a higher level of self-worth in the peasant as a peasant; rather, the satisfaction is individual.

Hacienda intensely involves the player with the game action, with him/herself as a conscious player, and with other participants. The parameters of the game are set, but are quite broad; players can determine by their own actions most of the game's ongoing form and final outcome. The drawback to Hacienda is its limitations on the number of peasants who can participate at any one time. Hacienda appears to arouse a sense of ownership in its participants that is often frustrated by the game's complexity. As a simulation game, Hacienda forces the participant to examine him/herself in light of rural reality; the particular "tilt" of the game (towards cooperativism and cooperation) allows that examination to be a very positive one <u>if</u> participants have played correctly. Otherwise, participants are left somewhat frustrated at their losses during the game.

4) do not all act to integrate the playing group. As participant activities, we found that the three "fluency" games were highly individualistic, fostering a certain level of competitiveness rather than cooperation. The learning/reflection

sessions as such helped bring the group back together, through the facilitator's focusing of the participants' own common experiences. Hacienda, on the other hand, is designed to physically involve the players as a functioning group during the game and, if certain choices are made (i.e., formation of a cooperative, opposition to the hacendado, etc.), to lead towards the sense of group identity in real-life situations as well.

Likewise, the four games offer a variety of mechanisms for the disinhibition of individual peasants. Number Bingo seems to be the least effective in this area because it in no way challenges the person to become more open. The two literacy games allow somewhat more room for interpersonal cooperation and exchange of ideas during play, but at the same time may focus on the less capable members of the groups and thus reinforce personal inhibitions. Hacienda presents an initial barrier to personal expression because of its highly novel character; but in the long run we have found it to be the most effective of the four games in providing an activity framework in which the peasant is encouraged and allowed to express him/herself on a wide variety of topics, all within a relatively secure atmosphere. With the three "fluency" games it is the facilitator and the after-game reflection and discussion period that provide the only real opportunity for individuals to give voice to their experiences.

How these group and individual motivational attributes will translate into concrete community activities over a longer period of time remains to be seen. In several UMass project-impacted villages (Puñachísac, Sinchal) there have been community improvement projects (a census, the incipient formation of an agricultural cooperative) that are directly traceable to the influence of the games and the reflection on them. In San Martín, Tutupala, and Baldalupaxí there have been ongoing activities (a forestry cooperative, a communal store, a regional agricultural cooperative) that

have been affected by the ideas brought back by the trained facilitators; the games and the learning sessions as such have had no influence, according to these same leaders. In other UMass project communities, there has been no visible activity as a result of the games.

In the evaluation communities too little time has elapsed for any real effects to have surfaced. A small group in Asunción was motivated to apply for an adult education teacher, but this appeared to be due to the program as such, and not to specific non-formal games used there. In Palmar and San Pablo, much the same can be said; the games/reflection groups have organized for other small community improvement activities (improvement of the beach, more stable electrical service, water service), but more because of the kind of program the games and facilitators represent than the actual content of specific games.

In still other evaluation communities--Barcelona, Dos Mangas, Cadeate, Hipolongo, Yayuligui, El Calvario--the games' influence is felt indirectly, through the participants who are already active in other community groups.

In no instance whatever did we find any evidence that the non-formal games alone motivated people to specific communal activities outside the game sessions. It was only when used in conjunction with a facilitator-led reflection that we could observe a focusing of specific concerns raised during the games onto actual community problems. And even in these cases, subsequent action was largely determined by the characteristics of the facilitator, the particular group, and the individual community, rather than by the content of the game.

## QUESTION 9: WHAT CHANGES IN ATTITUDES AND BEHAVIORS (CRITICAL CONSCIOUSNESS) ARE PRODUCED BY EACH OF THE SELECTED NON-FORMAL EDUCATION GAMES?

The answer to this question is based on objective information collected by means of individually administered questionnaires on pre-post fashion to villagers before and after playing each of the non-formal education games introduced by the evaluation staff into a total of 15 virgin communities.

As has been described in detail in Chapter II, a principal component of each NFE game session involves a period of "reflection" which takes place usually after playing the game. The purpose of this "reflection" is to develop awareness and insights into one's everyday problems. This state of increased awareness and action is called "critical consciousness." In order to measure changes in "critical consciousness" as a result of using the NFE games, a questionnaire was developed and administered. The development and the administration of this questionnaire are described in Chapter II.

In order to determine the extent to which test-retest differences found in the 15 experimental communities could be due to factors other than the intervening treatments (e.g., test practice effects), a control sample was selected and administered the measures on a pre-post fashion without an intervening treatment. The selection and measurement of the control sample have been described in the answer to evaluation Question #4. $t$ tests for correlated means computed for the control villagers comparing performance on the pre and second test revealed no significant gains in Critical Consciousness; in fact, there was a significant decrease ($M$ on pretest = 15.19, $M$ on second test = 12.06, $t = -2.95$, 15 $df$, $p < .01$). This decrease probably

can be explained on the basis of an adaptation effect.

It can be safely assumed, then, that any significant gains in the results involving the experimental communities are due to treatment effects.

The remaining portions of the answer to the present evaluation question will be organized as follows: Each of the four NFE games will be discussed in terms of its effects on critical consciousness among individuals participating in the game sessions, separately by community. In addition, we will discuss the results of aggregating all individuals across communities which had the same treatments.

The analyses performed are t tests for correlated means comparing performance on individuals having data on each pair of repeated measures means.

Effects of Hacienda on Critical Consciousness

Hacienda was introduced by the evaluation staff, and pre-post measures taken, in a total of nine communities (six Sierra and three Coast): Rumipamba, Hipolongo, El Calvario, Asunción, San Antonio, and Miraflores in the Sierra and Palmar, Dos Mangas, and Barcelona on the Coast. In all the communities except San Antonio it was played as the first or only game.

Table III. 9.1 presents data as to whether in each of the communities where Hacienda was played there was a significant immediate increase in critical consciousness. As can be seen, of the six Sierra communities, in only one there was a significant effect in critical consciousness; and of the three Coast communities in two there was a significant effect in critical consciousness.

TABLE III. 9.1

Effects of Hacienda on Critical Consciousness

| Community | N | Significant Immediate Increase in Critical Consciousness | M Gain | t | df | p < |
|---|---|---|---|---|---|---|
| Sierra | | | | | | |
| Rumipamba | 12 | No | -- | -- | -- | -- |
| Hipolongo | 12 | No | -- | -- | -- | -- |
| El Calvario | 10 | Yes | 1.30 | 2.51 | 9 | .03 |
| Asunción | 16 | No | -- | -- | -- | -- |
| Miraflores | 10 | No | -- | -- | -- | -- |
| San Antonio | 9 | No | -- | -- | -- | -- |
| Coast | | | | | | |
| Palmar | 14 | Approaches Sig. | 2.21 | 2.09 | 13 | .06 |
| Dos Mangas | 15 | Yes | 1.53 | 2.27 | 14 | .04 |
| Barcelona | 10 | No | -- | -- | -- | -- |

Effects of Syllable Dice on Critical Consciousness

Syllable Dice was introduced by the evaluation staff, and pre-post measures taken, in a total of seven communities, four Sierra and three Coast. In two communities, San Francisco and Cadeate, it was the only NFE game introduced; in Hipolongo and Dos Mangas it was played following Hacienda; in the three remaining communities it was played following Syllable Cards.

Table III. 9.2 presents data as to whether in each of the communities where Syllable Dice was played there was a significant immediate increase in critical consciousness. As can be seen, of the four Sierra communities in only two was there a significant or near-significant effect on critical consciousness; of the three Coast communities in none was there a significant critical consciousness effect.

TABLE III. 9.2

Effects of Syllable Dice NFE Sessions on Critical Consciousness

| Community | N | Significant Immediate Increase in Critical Consciousness | M gain | t | df | p < |
|---|---|---|---|---|---|---|
| Sierra | | | | | | |
| San Francisco | 12 | No | -- | -- | -- | -- |
| Hipolongo | 11 | Yes | 2.00 | 2.97 | 10 | .01 |
| Yayuliguí | 11 | Approaches Sig. | 2.18 | 1.98 | 10 | .08 |
| Pilchipamba | 4 | No | -- | -- | -- | -- |
| Coast | | | | | | |
| Cadeate | 13 | No | -- | -- | -- | -- |
| San Pablo | 12 | No | -- | -- | -- | -- |
| Dos Mangas | 15 | No | -- | -- | -- | -- |

Effects of Syllable Cards on Critical Consciousness

Syllable Cards was introduced by the evaluation staff, and pre-post measures taken, in a total of five communities, three Sierra and two Coast. In three communities (Yayuligüí, Pilchipamba, and San Pablo) it was the first NFE game played; in the remaining two communities (El Calvario, Palmar) it was played following Hacienda.

Table III. 9.3 presents data as to whether in each of the communities where Syllable Cards was played there was a significant immediate increase in critical consciousness. As can be seen, in none of the three Sierra communities did the Syllable Cards NFE sessions produce a significant increase in critical consciousness. On the other hand, in both of the Coast communities there was a significant immediate increase in critical consciousness as a result of the Syllable Cards NFE sessions.

TABLE III. 9.3

Effects of Syllable Cards NFE Sessions on Critical Consciousness

| Community | N | Significant Immediate Increase in Critical Consciousness | M gain | t | df | p < |
|---|---|---|---|---|---|---|
| Sierra | | | | | | |
| Yayuliguí | 13 | No | -- | -- | -- | -- |
| Pilchipamba | 13 | No | -- | -- | -- | -- |
| El Calvario | 6 | No | -- | -- | -- | -- |
| Coast | | | | | | |
| San Pablo | 13 | Yes | 2.15 | 2.85 | 12 | .01 |
| Palmar | 13 | Yes | 3.92 | 3.20 | 12 | .01 |

Effects of Number Bingo on Critical Consciousness

Number Bingo was introduced by the evaluation staff, and pre-post measures taken, in a total of four communities, two Sierra and two Coast. It was played as the first and only NFE game in Montañita and as the second game to Hacienda in Rumipamba, Asunción, and Barcelona.

Table III. 9.4 presents data as to whether in each of the communities where Number Bingo was played there was a significant immediate increase in critical consciousness. As can be seen, in none of the four communities was there a significant change in critical consciousness as a result of the Number Bingo NFE sessions.

TABLE III. 9.4

Effects of Number Bingo NFE Sessions on Critical Consciousness

| Community | N | Significant Immediate Increase in Critical Consciousness | M gain | t | df | p < |
|---|---|---|---|---|---|---|
| Sierra | | | | | | |
| Rumipamba | 12 | No | -- | -- | -- | -- |
| Asunción | 15 | No | -- | -- | -- | -- |
| Coast | | | | | | |
| Barcelona | 15 | No | -- | -- | -- | -- |
| Montañita | 17 | No | -- | -- | -- | -- |

## Summary and Conclusions Regarding the Effects of NFE Sessions on Critical Consciousness

Hacienda NFE sessions were effective in significantly increasing critical consciousness in the majority of the Coast communities in which the sessions took place. Hacienda sessions, however, generally were not effective in significantly increasing critical consciousness in Sierra communities.

Syllable Dice NFE sessions were effective in increasing critical consciousness in half of the Sierra communities in which they took place. Syllable Dice sessions, however, were not effective in increasing critical consciousness in any of the Coast communities.

Syllable Cards NFE sessions were effective in increasing critical consciousness on the Coast, but not in the Sierra.

Number Bingo NFE sessions were not effective in increasing critical consciousness in any of the communities in which they took place.

The conclusions based on the empirical data presented herein in no way should be interpreted as suggesting that these non-formal education materials might not be more effective in contributing to an increase in level of critical consciousness if they had been implemented in a different manner. The empirical portion of the evaluation report can only address the results of the intervention as employed in this study. The conclusions apply to the manner in which these treatments were implemented; the implementation procedures have been presented in detail in Chapter II of the present report. It is, however, with a great deal of confidence that

we report the present findings as results of the treatments implemented by the evaluation staff.

As we have pointed out in responses to some of the other evaluation questions, the effects of the use of these non-formal education games seems to be a function of a host of factors, including principally the manner in which they are implemented by the facilitator and the nature of the group playing the game. In fact, as noted in the response to evaluation Question #3, another principal finding is that the impact which the total UMass NFE project had in the communities selected for that component of the evaluation, appears to have been effective in increasing the level of critical consciousness of participating villagers. The total UMass NFE impact in some of those communities involved the use of these games in the context of the UMass NFE project facilitator model and in the total context of the UMass NFE project intervention. Moreover, our measurements in UMass-impacted villages were after a long period of time whereas our measurements in the experimental UCLA communities were taken after five game playing sessions. It is also possible that the materials might have a stimulating effect that does not become manifest for a period of time.

## QUESTION 10: WHAT SEQUENCING FACTORS OR PREREQUISITES ARE IMPORTANT FOR THE FIVE NON-FORMAL EDUCATION GAMES?

It should be noted that because of the limitation of the present evaluation design the data available to support the findings on game sequences must be considered as limited. To answer the question to a fuller extent, additional data related to this question can be found in the responses to Questions 6 and 11.

The answer to this question is based on empirical data. t tests for correlated means were performed comparing the pre versus third test performance on literacy, numerical skills, and critical consciousness for groups of communities in which the evaluation staff introduced each game sequence. In addition, analyses were performed within each group of communities for individuals who had low initial scores. Only those results which can be attributed to the game sequence, i.e., and not to the effects of either of the two games by themselves, are discussed.

In order to make statements about sequencing effects, significant differences between the Pre and Third tests are considered only if those significiant gains could not be attributed to the effects of individual games within the sequence. That is, if the gain between the Pre and Third tests was significantly greater than the gain between the Pre and the 2nd, or between the second and the third tests, then it could be said that the demonstrated gain was due to the specific two-game sequence.

Effects of the Syllable Cards - Syllable Dice Sequence. This NFE game sequence was implemented by the evaluation staff in three communities --Yayuligui, Pilchipamba, and San Pablo.

A comparison of scores on the pre vs. the third tests of all the villagers in these three communities revealed a near-significant increase in Critical Consciousness (M gain = 1.48, t = 1.84, 28 df, $p < .08$). An inspection of the results of the individual effects of each of the two games reveals no significant individual effects, indicating that the above mentioned near-significance effect is apparently due to the two-game sequence.

In all three communities only one villager scored at or below 25 in Total Reading Version 1 pretest.

Effects of the Hacienda - Syllable Cards Sequence. This NFE game sequence was implemented by the evaluation staff in two communities--El Calvario and Palmar.

A comparison of the performance of all villagers in these two communities on the pre vs. third tests showed no significant increases that were due solely to the sequence of these two games, over and above gains attributable to each of the games individually.

Only one villager scored at or below 25 on Total Reading Version 1 of the pretest.

Effects of the Hacienda - Syllable Dice Sequence. This NFE game sequence was implemented by the evaluation staff in two communities--Hipolongo and Dos Mangas.

A comparison of scores on the pre vs. third test on all the villagers in these two communities revealed no significant changes on any of the literacy, numerical skills, or Critical Consciousness variable.

Four villagers from these two communities scored at or below 25 in Total Reading Version 1 pretest and six villagers at or below 24 in Total Math Version 1 pretest. When the data for them were analyzed separately,

no significant increases between the pre and third test were found on any of the variables.

Effects of the Hacienda - Number Bingo Sequence. This NFE game sequence was implemented by the evaluation staff in three communities--Rumipamba, Asuncion, and Barcelona.

A comparison of the performance of all villagers in these three communities on the pre vs. third tests showed no significant increases in any of the variables due solely to the sequence of these two games.

Moreover, an analysis of performance of villagers with scores of 24 or below in Total Math Version 1 pretest also showed no significant increases attributable to game sequence.

Summary and Conclusions

One of the four two-game sequences studied experimentally, the Syllable Cards - Syllable Dice sequence resulted in near-significant gains due solely to the sequence. This NFE game sequence resulted in a near-significant increase in Critical Consciousness.

No other sequence effects were borne out by the data.

It should be emphasized that the present findings apply to the manner in which the treatments were instituted by the evaluation staff. These have been described in detail in Chapter II. One may not, based on the present findings, discard the possiblility that the same game sequences, if implemented as part of a different set of treatment conditions, or with different groups of individuals, might not result in significant effects. Nor are we commenting on the results of each game individually since, as we have explained previously, those results had been discussed in Questions 4 and 9.

## QUESTION 11: WHAT ARE THE EFFECTS OF REPLAY FREQUENCY FOR EACH OF THE NON-FORMAL EDUCATION GAMES?

Throughout the experimental implementation phase of the evaluation, an attendance record was kept for each villager participating in the treatments (i.e., the NFE animador-led game sessions). In addition, individual records were kept for each villager's use of the games outside of the NFE sessions. These attendance records have been described in Chapter II.

Correlation coefficients were computed between attendance data and gain scores resulting from the use of each NFE game. These gain scores were computed for each individual on each variable. When interpreting the resulting correlation coefficients it should be kept in mind that the distribution of difference scores typically is not known, and that the shape of the distributions of the test variables in some cases deviates from normality.

Effects of replay frequency on gains due to Syllable Cards. Syllable Cards was introduced by the evaluation staff as the first NFE game in three rural villages, Yayuliguí, Pilchipamba, and San Pablo; and as the second NFE game in two rural villages, El Calvario and Palmar.

In the communities where Syllable Cards was instituted as the first NFE game, there were no significant relationships between attendance or number of times the game was used without the animador and gain in any of the variables.

Where Syllable Cards was instituted as the second NFE game (after Hacienda) the following significant relationships emerged. The more times

a villager attended the animador-led sessions, the greater his/her gain in Critical Consciousness ($r$ = .62, $p$ < .01, $N$ = 19). Also, the more times a villager played the game independently (without the animador being present), the greater his/her gain, too, in Critical Consciousness ($r$ = .38, $p$ < .05, $N$ = 19).

Effects of replay frequency on gains due to Syllable Dice. Syllable Dice was introduced by the evaluation staff as the first and only NFE game in two villages, San Francisco and Cadeate, and as the second NFE game in five villages, Hipolongo, Yayuligui, Pilchipamba, San Pablo, and Dos Mangas.

Where Syllable Dice was introduced as the second NFE game the following significant relationships emerged. The more times a villager played the first game in the sequence (Hacienda or Syllable Cards) with the animador, the greater his/her gain in Reading as a result of playing Syllable Dice. ($r$ = .26, $p$ < .03, $N$ = 53). Also, the more times the first game in the sequence (Hacienda or Syllable Cards) was played without the animador, the greater the gain in Critical Consciousness as a result of playing Syllable Dice ($r$ = .25, $p$ < .04, $N$ = 53). However, the more times the first NFE game was played with the animador, the less the gain in Critical Consciousness as a result of playing Syllable Dice ($r$ = -.25, $p$ < .04, $N$ = 53).

Effects of replay frequency on gains due to Number Bingo. Number Bingo was introduced by the evaluation staff as the second game to Hacienda in three villages, Rumipamba, Asunción, and Barcelona.

Results show that the more animador-led sessions of Bingo a villager attended, the greater gains he/she achieved in numerical skills

($r$ = .27, $p$ < .04, $N$ = 42). Also, the more animador-led sessions of the previous NFE game (Hacienda), the greater the gain in numerical skills as a result of playing Number Bingo ($r$ = .52, $p$ < .02, $N$ = 15). These results shed additional light on the matter discussed in Question 10 relating to sequencing effects. Apparently, the use of Hacienda prior to Number Bingo acted as a stimulus for obtaining greater gains in numerical skills as a result of playing Number Bingo.

The more times the previous NFE game in the sequence (Hacienda) was played without the animador, the greater the gains in Reading ($r$ = .45, $p$ < .01) and in Functional Writing ($r$ = .46, $p$ < .001, $N$ = 42) as a result of playing Number Bingo. The number of participants who played Hacienda without the animador one or more times was very small, thus we do not place much emphasis upon these findings.

Effects of replay frequency on gains due to Hacienda. Hacienda was introduced by the evaluation staff as the first or only NFE game in a total of eight communities, Rumipamba, Hipolongo, El Calvario, Asunción, Miraflores, Palmar, Dos Mangas, and Barcelona.

Results show that the more times a villager attended animador-led Hacienda sessions, the greater his/her gain in Functional Writing ($r$ = .25, $p$ < .05) but the less his/her gain in Reading ($r$ = -.50, $p$ < .001, $N$ = 46). This could be a function of individuals having attained criterion in Reading but not in Functional Writing (since Reading is a more easily attained criterion.)

Participant Desertion. The demographic and cultural characteristics of the evaluation participants as they related to gain scores through the use of non-formal games (discussed in Question 6), and the apparent

importance of repeated game use in those learning and "consciousness" gains, bring out the necessity of identifying which type or types of rural dwellers are most likely to continue attending non-formal game sessions. That is, what are the factors that most often act to discourage attendance, thereby reducing the chances for effective game impact on individuals?

The individual attendance records (see Appendix B) allowed us to trace participant desertion (which was common in all the evaluation communities) to its causes. We found the greatest barrier to continued attendance was the work pattern of campesinos. Long days of labor in the fields (or all night on boats, which was the case in fishing villages), when coupled with the distances between one's home and the center of the village, acted to reduce the participant groups to only those individuals who were most highly motivated. In the case of Number Bingo, the motivating factor was often entertainment; this was usually not high enough to offset the participants' perception of the game as being of limited educational value, and desertion was high. Desertion was lowest when Hacienda was played, due to the game's multiple learning possibilities, its reflection of rural issues, and its great entertainment value. These acted to overcome what were otherwise strong barriers to continued participation in the sessions.

Attendance was lowest among adult females. In part this was due to the work pattern; women not only work in the fields during the day, but are expected to maintain the home and take care of the children as well. Too, certain cultural barriers to female participation (especially in Coastal communities) in community activities continue to exist in rural areas.

The other major reason for individual desertion of the program was lack of interest; that is, people felt the games and sessions were of little or no value to them. This reason was most common among those who had completed four or more years of primary school, and those individuals under 20 years of age and over 45 years. Hacienda was the only one of the four evaluation games we found able to largely neutralize this factor. That is, its attractiveness and apparent utility to the campesino were enough to motivate continued attendance among all types of people.

Summary and Conclusions

In situations where Syllable Cards was introduced as the second NFE game to Hacienda, increased replay frequency of Syllable Cards was effective in producing greater gains in Critical Consciousness. This was the case both for animador-led and non-animador-led sessions.

When Syllable Dice was introduced as the second NFE game (to Hacienda or to Syllable Cards) increased replay frequency of the first game in the sequence (Hacienda or Syllable Cards) at animador-led sessions was effective in producing greater gains in Reading as a result of playing Syllable Dice. Also, increased replay frequency of the first game in the sequence (Hacienda or Syllable Cards) without the animador, produced greater gains in Critical Consciousness.

Increased replay frequency of Number Bingo in animador-led sessions was effective in producing greater gains in numerical skills. Also, increased replay frequency of Hacienda in animador-led sessions prior to playing Number Bingo was effective in producing greater gains in numerical skills as a result of playing Number Bingo.

Increased replay frequency of Hacienda in animador-led sessions

produced greater gains in Functional Writing as a result of playing this NFE game.

A general pattern emerges quite clearly; the more time that games were played, the higher the scores attained by participants. Another fascinating finding is that the replay frequence of the first game affects the learning and consciousness outcomes of the second game. These findings lead us to speculate about the potential increased game scores that might have been attained by the playing of the various games (discussed in Questions 4 and 9) if there had been a stronger (more game playing sessions) treatment variable. These speculations seem particularly appropriate given the strong correlation found between game playing frequency and gain scores.

Finally, the findings on desertion indicate that game playing frequency is lowest among that group of rural dwellers which appears to benefit greatly from the games' learning attributes: women. (See Question 6.) Replay frequency is high, however, among another group that benefits from the materials, male adults having between zero and three years of formal schooling; it is low among those groups--adult males or youths with over five years' education--who appear to need the games' learning content the least.

For each NFE game, the maximum possible replay frequency for animador-led sessions was five times. Therefore, no conclusions are made regarding potential situations with a larger possible number of animador-led sessions. The non-animador-led replay frequency, however, was limited only by the test-retest time frame of ten weeks per two-game sequence or of five weeks where only one NFE game was introduced.

QUESTION 12: CAN THE UMASS NON-FORMAL EDUCATION PROJECT BE REPLICATED IN OTHER COUNTRIES? WHAT CONDITIONS ARE MOST NECESSARY TO ENSURE SUCCESS?

The UMass non-formal education program, which presupposes community development as at least one of its intended goals, moves significantly beyond the realm of "education" as it is commonly conceived by implementors of educational programs in rural areas of the world. And, when such a program also postulates the "conscientization" (i.e., the critical awareness of one's life situation) of its intended target population, education as such becomes secondary and the setting of measurable long-term goals becomes nearly impossible.

Non-formal education, as it is understood and as it has been implemented by the University of Massachusetts non-formal education project in Ecuador, is decentralized and non-directive. Its specific goals are short-term (e.g., improvement in immediately applicable fundamental skills), while its long-range goals can be stated only in terms of changes in people's perceptions of their reality and in acting toward improving their situation. These goals require that non-formal education be entirely flexible, aiming at the development of individual attitudes as well as specific skills. In this way the peasant participant will not be locked into skills aimed only at changes deemed necessary today, but rather will be able to deal effectively with future situations, too.

The UMass project in Ecuador has not developed a complete educational model that entirely satisfies the ambitious goals of non-formal education in terms of their expanded definition. Nor does it claim to have done so. Rather, it has experimented with several possible components that, if

implemented in certain combinations and under certain circumstances, might form the basis for such an educational model.

The UCLA evaluation has focused its attention on the two experimental educational components--facilitators and non-formal learning games--into which the UMass project has invested its greatest efforts in terms of conceptualization, time, and field experimentation. They are also the two aspects of the UMass project which have drawn the greatest interest from outside observers. This has led to the idea that the facilitators and the games are in fact already a non-formal education system, and that the two are inseparable. It is an idea that causes much chagrin among UMass project personnel, who argue fervently that the facilitator model can and does stand alone, while the games are relatively unimportant tools that the facilitators may or may not use.

Through extensive observations of UMass project-impacted communities, interviews with the facilitators there, and the experiences of the evaluation's experimental implementation of the non-formal games, we have found that the games <u>are</u> crucial to the objectives the facilitators are meant to achieve, and that likewise the facilitators are crucial to a truly effective utilization of the games. We did not systematically explore the other UMass project experimental activities; one or more of them might also be useful as part of an integrated non-formal education model. However, we found that the facilitators and the educational games together have the potential for forming the basis of a realistic non-formal education system in Ecuador.

The facilitator-games model as a strictly low-level, low-cost functional literacy program could be implemented in almost any country under just about any conditions. But if the model is to be considered in its

fullest sense, as a vehicle for literacy that at the same time arouses rural people to a fuller awareness of their surroundings and the possibilities for changing those conditions, then there are a number of rather narrow conditions that we have found that must be present. The conditions can be seen as falling under four broad headings: the institutional setting, the particular rural communities to be included in the program, the people (facilitators) who will implement the program at the local level, and the games that will be used.

It will become apparent that none of these conditions are easily met, let alone all of them together in any one country. Nevertheless, our experience in Ecuador leads us to conclude that the optimal functioning of the facilitator-games non-formal education model requires that all the conditions be present, since they are mutually dependent for the effectiveness of a program such as this one.

The Institutional Setting

A variety of very special organizations operating under particularly favorable circumstances allowed the original facilitator model and the non-formal games to be used in Ecuador. The world-wide interest in "educational alternatives" in the early 1970's, the particular definition given to "non-formal education" by the University of Massachusetts, the willingness of USAID to invest in such experimentation, the willingness of the Ecuadorian government to explore changes in the way it viewed education in the rural areas--all of these factors will not come together again in the same way in Ecuador, let alone in any other country.

What we must glean from this set of circumstances is a general outline of institutional factors that would allow a facilitator-game model (or something closely similar to it) to function effectively once it had

been field tested and decided upon as feasible for another country. We will focus, then, on support for rather than on the initial implementation of the model.

In our conversations with UMass-and CEMA-trained facilitators in the summer of 1974, as we began the selection of evaluation communities, we were struck by the recurrence of two issues in those talks: the economic burden the program placed on a facilitator and the uncertainty as to where the non-formal project was intended to go. All the facilitators mentioned the loss of time, and hence money, represented by the training sessions and the community literacy classes they gave. Although none of those we talked with indicated that it was an unrewarding burden at the beginning of the UMass project, several did say that they eventually became inactive as facilitators because of the economic demands of supporting a family. Likewise, the fascinating, effervescent atmosphere of the first few months, when community interest was at its peak, seemed to mean that the program was a success; they felt that people were learning and were changing their ideas about life. But as time went on, the facilitators found their own interest and that of the other peasants to be on the wane. Some community groups had advanced beyond the level of the UMass games and were looking for new materials; other groups disbanded because they felt they had learned as much as they needed. A few facilitators were unsure of what to do with the groups night after night. In general, the facilitators we spoke with felt that most of the project's objectives had been accomplished. But they were also left with the feeling that it couldn't end or die out just like that; it had to go somewhere.

These same concerns were expressed in the numerous interviews we conducted in early 1975, with facilitators and participants in eight UMass

project-impacted communities. People remembered the program, they felt it had been useful--but few could say what it had all been about.

The uncertainty was reflected in Quito as well. No two of the many people we talked with in the UMass project office, the Ministry of Education, or the USAID mission could agree exactly on how the facilitators and games should be funded, nor on what the model's ultimate goals were. All agreed, however, that it was a useful system and ought to be continued.

For both economic reasons and reasons of continuity, the evaluation was forced to conclude that the effectiveness of the facilitator-games model in Ecuador, as well as its replication in other countries, is dependent on its sponsorship by a national (i.e., from the nation, nation-wide) institution, most likely the Ministry of Education. A non-formal education program cannot function indefinitely on independent foreign money, for political reasons and economic ones; the UMass project has learned this in Ecuador. Nor can the program participants--poor rural peasants--be expected to bear any but the smallest percentage of its real costs; this is all the more true for the facilitator, who devotes preparatory time above and beyond the actual learning sessions. For reasons of immediate sustenance and stability, we feel that the facilitators should be reimbursed for the income forgone in carrying out their duties in the community. (This point will be amplified in our discussion of the facilitators.) Further, we observed that the "consciousness" goals of this particular non-formal model require substantial time to achieve. If the project is to avoid the year-to-year uncertainty of funding requests, it needs the long-range commitment that only local institutional support can give it.

Non-formal education implies the freedom of the individual to use it (or not) as he or she sees fit. Our interviews with participants in the

UMass program and with those of the evaluation program showed that the campesino is concerned with the visible, definable ends toward which the education leads; in many cases that end was a sense of personal satisfaction, but in many more it was a community project of some kind or a formal recognition (e.g., a diploma) for the course taken. There was the evident felt need among the campesinos to link the non-formal program with some other kind of activity, or to at least put it on a continuing, predictable basis. While knowledge as its own reward may be one motivation for a person's participation in this type of program, we found that many people were also interested in (ironically) some kind of "formalization" of the learning sessions.

At present, the facilitator-games model offers no such definite link to future activities, educational or otherwise. The evaluation team feels that under Ministry of Education auspices, the model would be able to offer as at least one of its possible end-points a continuation on to a higher level of formal education. Legitimization of the non-formal educational experience as one of several options open to the participant would meet the expressed desire of many peasants to utilize that experience as they see fit.

The experience of the UMass project in Ecuador points toward the desirability of local institutional sponsorship of non-formal education; but it is also an experience that clearly highlights several of the very serious dangers present in such an institutionalization, especially when that institution is the Ministry of Education. The Ministry in Ecuador has shown a tremendous amount of interest in non-formal education over the last five years, due in no small part to the UMass project and the funding available in that field through USAID. As a hierarchical institution,

however, the Ministry naturally enough sees "non-formal" in a more rigid way than does the UMass project. In theory, the Ministry is dealing with a variation of "liberating dialogue" literacy methods, but in practice it is implementing them through the same channels--formally trained teachers and formally established, but voluntary education centers for adults--that have proven to be ineffective in rural areas. In short, non-formal education as conceived in the Ministry is an improvement on existing systems rather than a possible alternative to them.

The distinction is one of splitting hairs if the facilitator-games model is seen as a traditional literacy delivery system; it becomes a most important one, however, when considering the model's "conscientization" component. This component, impossible to quantify in terms of system outputs, requires a great deal of freedom to function well. We have observed in nearly every rural community touched by the non-formal games, that discussions of their relevance to daily life eventually touch on national issues and often involve bitter criticism of the present national government in Ecuador. A condition for this confidence in speaking out appears to be the leeway allowed the non-formal program; that is, peasants have observed that although it is tied to institutions (UCLA, UMass, CEMA), there is no effort to direct the discussion toward non-controversial themes or "approved" conclusions.

Because of this, the evaluation team feels most strongly that a sponsoring local institution, especially if it is the Ministry of Education, must show in concrete actions as well as rhetoric great flexibility towards a facilitator-games model that is expected to meet <u>all</u> its objectives. That flexibility must be institutional; it must, contrary to most bureaucracies, allow for operational freedom of action that may imply no specific

or measurable end-point for the non-formal program. And most importantly, it must be a kind of ideological flexibility--one that allows, indeed welcomes, criticism of existing conditions in rural areas. There is no guarantee that these conditions can be found in many countries; they are not entirely present now in Ecuador as the UMass project passes into the Ministry bureaucracy. It is a fine line we have traced here: the need for local government institutional support of the facilitator-games model and the inherent dangers in that support. Yet the evaluation has found no other operational method for this particular model that comes any closer than this fine balance to meeting the long-range needs of an effective non-formal education in rural areas.

The Rural Communities

The second important factor in the setting of an effective facilitator-games model is the careful prior selection of the rural communities where the program is expected to function.

The evaluation has found, not surprisingly, that all rural villages are not alike. In fact, they tend to be quite diverse even within the same geographical region (to say nothing of diversity on a national or international scale). Each small community has at its disposal a distinctive set of ecological, economic, and human resources. We observed in all of the villages that it is only from this particular combination of factors, seen in its individual context, that judgments could be made about the educational needs of a community and decisions then taken as to the best means of meeting those needs. In short, it was quite apparent that neither in the Sierra nor on the Coast could it be said that every rural community in Ecuador (let alone the entire underdeveloped world) needs or wants another educational program, non-formal or otherwise.

That the facilitator model of community-based "educational resource persons" would not work well in every village was hypothesized by CEMA in its 1971-72 non-formal education project in the Sierra. They set out certain ecological and economic criteria that were felt to be necessary if a community was to be able to support the facilitator model. The UMass project adopted those criteria (with certain changes) in their own facilitator programs in the Sierra and on the Coast in 1973. The UCLA evaluation, too, adopted them, with its own modifications. This was in order to replicate the setting of the facilitator-games model to the extent possible in our evaluation of the game materials, and in order to test the community selection criteria themselves, evaluating them as important variables in the relative efficacy of the facilitator-games model.

Our experience in introducing the model to over 20 rural communities, and the insights gained in the interviews with UMass project field staff and community facilitators, led us to conclude that prior selection of a community is critical to the success of the non-formal program. We have outlined below those characteristics we found to be most important for the realization of both major non-formal objectives: transfer of fundamental skills (literacy, numeracy) and community development (which includes individual "conscientization").

Ecological Resources. It became obvious that a community must have a solid economic base within the community itself, whether it be agriculture, fishing, small commerce, artisanry, or any combination of these, in order that the population be assured of a standard of living that satisfies their basic social and economic needs. This implies the permanent accessibility of the natural resources upon which the community

depends. It means that the community's residents, especially the most productive segment (men between the ages of 18 and 45) do not have to abandon the area in search of work.

In those communities where temporary or permanent labor-related migration was common (Asunción, San Martín, Baldalupaxí, Miraflores) or where the people depended on neighboring communities for economic resources (as was the case with Cadeate and San Pablo), we observed two phenomena: there was little interest shown by the common resident in the direction of the community as an entity since they did not feel responsible for the conditions in which they lived nor did they feel able to change them; secondly, the community was usually left in the hands of those least able to maintain it--the elderly, women, and children. The absence of the community's youth and the day-to-day struggle for economic survival appeared to rob the population of that sense of possibility so necessary to the development of a change-oriented non-formal education model.

Communications. We observed that an efficient, reliable communications system in the rural community was important to its relative economic independence, and hence its possibilities for progress. Those communities (Palmar, Barcelona, those in the Pallatanga and Quero areas, and others) which could get their products to market via car-worthy roads, a regular bus system, or access to private vehicles were able to largely eliminate several of the intermediary levels (i.e., brokers, dealers) that act to keep prices for the farmer or fisherman far below market value. With this, individuals here had more money with which to invest in housing, entertainment, health, or agriculture. Both the access to natural resources and their control at the local level aid a facilitator program in that the

residents are able to see possibilities of change in the community and in themselves.

Communications in terms of media (newspapers, radio, magazines) were also seen to have an influence on the non-formal program. In areas such as the Colta-Columbe region, peasants have less contact with outsiders and outside ideas; the presence of outsiders was seen as threatening and the new ways of perceiving reality were more difficult to convey. On the other hand, communities with a high level of contact with the outside world (almost all the games-impacted villages on the Coast, those of the Quero area, and others) appeared to be more self-confident and better able to deal with the challenging perceptions of their reality.

The facilitator-games model has as one of its goals the development of the community. We saw that one of the bases for such development was the interdependence of the individual village with the socioeconomic system around it. The facilitator could not be expected to create that interdependence; a good part of it had to exist prior to the non-formal program's intervention.

Organization of the Community. The evaluation found that the introduction of the non-formal program to rural communities was greatly facilitated by the presence of functioning community organizations with which initial contact could be made. The existence of the organizations was, first, an indication that in at least some portion of the community there had developed the interest in working together for a common goal. Secondly, there would exist a group of experienced community leaders upon whom the responsibility for an ongoing program could be placed. Also, people in the community could be expected to have had some experience in working together, and therefore not feel threatened or uneasy in the group situation implied

by the non-formal program.

These considerations were highlighted by our experience in communities where few or no local organizations functioned (Asunción, Miraflores, Cadeate). The participants in the games were at first reluctant to join the group, feeling that it was perhaps too great a personal commitment. The facilitator was forced to spend an inordinate amount of time on tasks secondary to those of education and reflection (i.e., community organizer, group leader). Likewise, the effective use of the materials was delayed since they were first having to be used as an attraction, a novelty, rather than a tool for more serious purposes.

Dependency and Paternalism. As the evaluation gained a deeper insight into the subtleties of non-formal education implementation, we realized that the criteria explicated by other groups had a deeper quality dimension that needed to be explored and which went beyond the simple statement of the criteria. We noticed, for example, that in several communities (among them Cadeate, San Martín, Olón) there was a certain level of communication with the outside world, through media or the work of external service organizations, but that it was of a dependent nature. That is, it was either controlled by one or two leaders in the community who used it to consolidate their position of power, or the communication was entirely one-way (i.e., from the outside flowing in, with the community effectively non-contributing and dearticulated). Likewise, access to transportation did not guarantee local control of resources if those links were controlled from outside the community and used merely to facilitate economic exploitation (such as in Palmar, San Pablo, and others) or to facilitate permanent exit from the community.

Nor did community organizations always act as possible channels for local change; many (sports clubs, especially) are purely social in nature and do not see beyond their immediate activities, while others are dominated by leaders who stifle the participation of the average resident.

We concluded, then, that the direction and control of communications were just as fundamental as their physical presence. For the purpose of a facilitator-games model, it is important that communications--economic and social--be a two-way link in order that local residents feel that they have an influence on the forces around them.

Likewise, local organizations should be mutual--leader and participant--so that a greater number of people in the community develop a sense of responsibility towards their own activities. We observed in a number of villages (San Pedro, San Antonio, Olón, among others) that some organizations functioned on the ideas and activities of one person or one small group of residents; the other members were just not inactive, they were apathetic and directionless. The role of leader was personified, and everyone else felt helpless without it. In those communities where leaders acted to include others in the decision making (Sinchal, Barcelona, Dos Mangas, Hipolongo, Puñachísac, Tutupala), there was a noticeably higher level of interest and even excitement about community affairs. This made the facilitator's job immeasurably easier; he was not forced into a position of turning a community around single-handedly, but rather was able to build upon pre-existing conditions favorable to learning and development.

Unity of the Inhabitants. The existence of marked social, racial, religious, and economic differences within a small rural community breeds resentment and apathy among its residents. For a facilitator-games model,

this is disastrous; the sense of community and the ability of people to work together are necessary prerequisites for a program that aims in part at community development.

We observed in our own implementation of the model in Palmar, Miraflores, El Calvario, San Pedro (Tungurahua), and Urbina, as well as in the model as it was implemented in the UMass-impacted community of Colonche, that internal community conflicts, whether economic, religious, or social (or even personal), acted as one of the primary barriers to the program's reaching its intended goals. In several of these communities, the non-formal model was totally neutralized, never getting beyond the facilitator(s) and their small circle of acquaintances; in other instances the program, by acting with one or another of the rival factions, acted to compound the conflicts. We found that the model could function in a deeply divided community, but only as a literacy program; the "conscientization" component required exactly what these communities could not give: the open, inclusive participation of the residents.

Acceptance of the Non-formal Program. As a final condition for the implementation of this particular non-formal model, we saw the absolute need for the community's acceptance of the program. This meant, first, prior contacts with the community and its leaders to fully explain the nature of the program, its activities and goals. The contacts would allow the program, through the facilitator, to assess the other selection criteria, while allowing the community to weigh the benefits of the program and decide on its utility.

The UMass project experience and that of the UCLA evaluation had proven the wisdom of this care; several communities considered for impact

by one project or the other had been rejected after site visits and contacts showed the non-formal model would not work well there. In other communities, such as San Pedro (Guayas), Colonche, La Libertad (Chimborazo), and Chilco La Esperanza, the prior contact had been superficial or non-existent; the communities had no idea about the project or its intentions, the facilitators there felt powerless, and the local leaders felt slighted and resentful.

Acceptance, we found, also means "needs." The facilitator-games model was successfully implemented in several communities (e.g., Palmar, Colonche, San Pedro, Yayuligui, Urbina) by either UMass or UCLA, but was unable to meet its objectives because the materials were below the cognitive level of the participants. The games became recreational, unable to teach or to spark a reflection on local reality. On the other hand, where illiteracy is high or where the population speaks Quichua (all the UMass non-formal games are in Spanish), such as in Miraflores, Baldalupaxi, and San Pedro (Tungurahua), the games are likewise inadequate since they are above the average participant's cognitive needs.

The Facilitators

When a series of optimal project communities has been selected, the non-formal program must proceed to the formation of the first aspect of the actual model: the individual facilitators.

The UMass non-formal education project considers "facilitators" to be only those residents of the rural communities who are trained in non-formal materials and methods; people doing the same kind of work but who are from outside the community must be called by some other term. In deference to the UMass project sensibilities on this semantic point, the

UCLA evaluation field workers were called animadores rather than facilitators.

The UMass project postulates the fundamental importance of the facilitators' origin and subsequent area of work; if they are not from the community itself, it is felt that the problems of the people there will not be understood well, nor will an adequate process of reflection on those problems be possible. Also, according to the UMass project, a facilitator from the community assures that the non-formal program will meet the needs of its participants.

The UCLA evaluation found that these points indeed ought to be carefully considered in the implementation of a facilitator-games model, but that they are by no means the crucial factors in the success of a facilitator and his or her work.

Instead, we found in our selection of field workers and in the subsequent implementation of the model that the personal characteristics of the individual facilitator/animador (socioeconomic background, maturity, dedication, leadership qualities, etc.) and the kind of back-up support he or she receives while on the job are the most important considerations in the implementation of this model. We agree with the University of Massachusetts project that a facilitator from the community itself carries with him or her certain distinct advantages (i.e., familiarity with and, possibly the confidence of the people) that an outsider would have to acquire on the job. On the other hand, we noticed that the outside facilitator (animador) often has a broader background in the specific skill areas (literacy, numeracy) most often demanded by participants in this type of program. Further, the evaluation found that both facilitators and

animadores could gain the confidence of people in rural villages and thus carry out an effective program.

We feel strongly, however, that whoever the facilitator may be, he or she must live in the community or communities where they work. It has been our observation with the evaluation animadores that those who made their principal residence a nearby town or city, "commuting" to the communities, raised a physical and psychological barrier between themselves and the people with whom they worked; though there was a mutual acceptance, neither the animador nor the community program participants felt a sense of permanence about the work or its goals. Likewise, those facilitators in the UMass-impacted villages who spent a great deal of time outside the community either working or involved in other projects made their own work as facilitators sporadic, unpredictable, and, thus, ineffective. This particular non-formal model requires a high degree of facilitator-participant confidence to function well, and that confidence is the result of close working relationships.

Our findings on the preferred personal characteristics of the facilitators are discussed below, as is the kind of support they should receive in that role. In this discussion, we will use the term "facilitator" to mean anyone, native to the community or not, who implements this non-formal education model at the local level.

Socioeconomic Aspects: Age. We observed that in rural communities young people are considered to be adults after the age of 18 years; from 22 years on, they become part of the economically productive sector of the community and usually pass out of economic dependence on their families. This is especially true of young men. When this is the case, the person takes on the responsibility for his or her own actions, and in the

community's eyes, may speak out freely and be taken into account by other adults.

It is during the years between 22 and 45 that the individual seems to feel the greatest attachment to the community as a vital force, since his or her children are being raised there and he or she most likely anticipates living there for a number of years. People over 45 years of age, on the other hand, tend to identify with the community's present or past, seeing change as unsettling.

Our interviews with facilitators in most of the games-impacted communities (UMass and UCLA) and with community participants showed that the years between 22 and 45 were considered the ideal ones for taking on the duties of a facilitator. A good number of facilitator trainees were under 20 years, and very few of them subsequently were active in their communities; lacking stature in others' eyes, and the self-confidence built on personal experience with problems of daily life, these adolescents were overwhelmed by the demands of the job. The lack of economic independence, especially in the case of young women, severely limited their freedom of movement and action. Those few facilitators over 40 years of age were unable to attract the participation of younger people and often saw their position in terms of prestige rather than cooperation with others.

The evaluation found, then, that a facilitator was more likely to be effective in the rural community if between the ages of 22 and 45 years.

Sex. We found no inherent differences between the quality of work a female facilitator could do and that of a male counterpart. In every UMass-impacted or evaluation community where there were one or more female facilitators, however, the social and sexual mores of rural communities

(especially on the Coast) were an important influence--often negative--on their effectiveness.

In the sample of eight UMass-impacted communities, there were a total of eight women who were selected for training (versus 33 males) as facilitators; at least five completed the training, but none ever became active as a facilitator. Only two (in Baldalupaxí and San Martín) had anything to do at all with the project after training. The women were all in their early 20's and none were community leaders or economically independent; marriage, domestic duties, and lack of acceptance as group leaders led them to abandon their roles before they had begun.

Three of the UCLA evaluation field team were female, between the ages of 19 and 28 years. We found that their sex was no impediment to successful introduction of the program to a community. Nor were the difficult physical conditions of rural work more trying in general for these team members than for the males. The one animadora who left the evaluation did so for personal reasons. In the seven communities in which the females worked, only one (Asunción) showed a significantly higher percentage of women in the learning group (85%) than was common in all other evaluation communities (between 0 and 20%), and this was due to the general absence of the male population in Asunción, which leaves the community to find work. The other six communities showed only slightly higher female participation in the groups.

A negative effect observed in the communities was that of a male facilitator vis-a-vis female participation. In part because of cultural patterns that keep the women at home, but also because of suspicion towards the motives of a male facilitator, we found female participation to be very low in all areas. In five of the seven evaluation communities on the

Coast there were no female participants. While no accurate figures are available for the UMass-impacted communities, our conversations there indicated the same general pattern in both the Sierra and the Coast.

We concluded that males could work as facilitators in all areas of the country, with the effect, however, of providing no real incentive to female participation. We observed no barriers to the female facilitator if she were not from the local community. There appears to be a cultural phenomenon at work which accords to the female from outside the community a measure of respect and freedom from local restraints. It is a reflection, perhaps, of her apparent economic and social self-sufficiency. There is, too, the benefit to the program of the observation that female facilitators do not trigger a "machismo effect" (i.e., male rejection of a female leader) at the same time they attract female participants in slightly higher numbers.

The effect of the facilitator's sex on the functioning of the model in other countries would be dependent of the cultural context in question.

Education. None of the organizations which have worked with the facilitator-games model set a rigid educational criterion for the selection of the facilitators; rather, they have all insisted that they be sufficiently literate to manipulate the non-formal games and to act as educational resources within the community. Two or three illiterates have been trained by the UMass project as facilitators, but none has acted as such in their communities.

It was our observation in all the games-impacted communities we studied that rural participants expect the facilitator to be a real learning resource, and he/she must therefore have a noticeably higher educational level than just the ability to manipulate the four arithmetic functions

and basic words that are the requirements of the UMass games.

No specific educational level, nor literacy as such, was found to be required to lead a reflective discussion after the games had been used. The discussion's foundation on the game experience, however, would indicate that the same educational level referred to above would be useful. Several of the UCLA evaluation facilitators were university students; surprisingly, they had no more difficulty leading a discussion on rural reality than did many of the community facilitators. On the contrary, we observed a range of abilities among all the facilitators in their skill at manipulating the games and leading the discussions. Based on these observations and on a series of detailed interviews, we concluded that more important than a special educational criterion was the motivation that the facilitator brought to the program and the training he/she received there.

Socioeconomic Position Within the Community. Within communities that may show some internal economic or social differentiation (as was the case in Miraflores, Palmar, and Yayuliguí) the evaluation noted the advisability of the facilitator working with the "middle" or majority sectors of the community. If the facilitator is from that community, he/she should be from those same sectors. The non-formal model seeks to promote a viable, positive group identity; the middle ground avoids the over- or sub-estimation of a group by the facilitator or by the group itself. Just as important, working with the majority sector of the community avoids the suspicion common in small villages that an outside program has "taken sides" or has hidden motives far removed from education.

Economic Subsistence. The facilitator position was originally

conceived as a part-time post--a few evening learning sessions, various community activities, occasional re-training seminars. As it developed, however, it involved several weeks of training, preparation for the game sessions, the meetings themselves (often five nights a week for several months), and a number of facilitator group meetings. For an individual who supported his family through working a small, non-mechanized farm, being a facilitator was an expensive proposition indeed. This was recognized by CEMA, which paid the facilitators during the five weeks of training, plus a small sum thereafter for each day worked; the UMass project paid its facilitators during the training but not for their work in the communities.

None of the many facilitators with whom we talked wished to become a facilitator permanently, but all mentioned constraints on their community role because of economic demands. Some dropped out of the program; others became resentful towards what they considered the short-sightedness of the institutions which encouraged them and then withheld the vital economic support.

We had observed in one community--Puñachísac, where the facilitators had been paid for their work--that there was a good deal of local misunderstanding about the payments and the reasons for them. The facilitators apparently had not made clear this financial aid and when it was "discovered," the program participants felt they were being used for someone else's financial gain. Further, the facilitators came to be seen by some people as a kind of teacher--obligated to give the classes because that was their "job." This undermined the "horizonality" that was to have existed in this model between the educator and the educated, effectively neutralizing the "consciousness" objective of the model itself.

The facilitator-games model working at its best is a delicate balance of goals and people and is dependent on a good deal of faith and personal sacrifice. Ideally, these would be enough to sustain a person in this kind of work, but the demands of everyday life are otherwise. We found that if the model was to function long enough to meet its educational and motivational objectives, the facilitators would have to be protected against direct economic loss for their contribution to it; faith alone did not maintain a family and farm. We feel, however, that the payment to the facilitator should be only the equivalent of what he/she loses from regular work patterns. If the model is to be non-formal, it ought not to be perceived by village dwellers as a profit-making enterprise. (The same can be said concerning facilitators from outside the local area; pay should be sufficient to cover basic living needs or the facilitator will be seen as indistinguishable from the formal schoolteacher.) Further, since payments have been the cause of some misunderstanding and bitterness in the past, the issue must be made clear from the outset between the project and the facilitator and, more importantly, between the facilitator and the community. At the bottom of the controversy we found not the payments as such, but they way in which they had been handled from the beginning of each facilitator project.

Attitudes and Behavior: Desire for Change. This non-formal model is change-oriented, at both the personal and community levels. The transfer of this concept into functional terms requires an individual who him/herself is committed to that change. Our observations of the CEMA, UMass, and UCLA facilitators revealed that this is a personal attribute that must pre-date the facilitator training. No amount of personal interaction and group

motivation techniques was found to alter an individual's basic orientation towards his/her situation. The training can only give the facilitator a set of conceptual and material tools to transfer that outlook to others.

The particular nature of this model's objectives also requires a special kind of change-oriented person. It must be one who is dissatisfied with the existing socioeconomic state of the rural areas, but a dissatisfaction that is based on real political consciousness and not on unformulated restlessness or naive idealism. We found that the facilitator who could not focus his/her own ideas on change in terms of positive actions was able only to confuse and confound the learning groups. It was obvious that rural audiences knew what dissatisfaction was; what they expressed the desire for was a way to translate that into concrete terms rather than more frustration. We also observed that those facilitators (such as those in Cadeate, Dos Mangas, Sinchal, Puñachísac, and others) who demonstrated a clear-eyed, sincere dissatisfaction with rural conditions were exactly those who were best able to attract the normally less assertive members of the community because they offered the possibility of change instead of wandering rhetoric.

Participatory Leadership. The ability to draw peasants who would normally not involve themselves in change-oriented programs brings with it a special danger for the facilitator: the creation of dependency in the program participant. The evaluation staff observed countless times the willingness of peasants to sit and listen to someone seemingly more prepared than themselves. We also saw their ability to verbalize their basic problems and begin to think of them in subjective terms--if given the chance. Therefore, the facilitator role was crucial. He/she had to

be able to share the direction of the learning sessions in order to make the learning a self-created process for the campesino.

Procedures for this "democratic" leadership style have been an important part of every project's facilitator training, but they have been very difficult to implement successfully. The procedures involve the facilitator's "reading" of a group in order to know what their objectives are, and then getting the participants to verbalize them so that they can use the materials in a more directly beneficial way. This often requires a great deal of patience, and the ability to refrain from imposing one's own criteria on the group.

We observed that in those unfortunately few communities where a facilitator had practiced a truly participatory, inclusive style of leadership, the learning group demonstrated a greater confidence in their own use of the games. They were able to invent variations on ways to play and, in a few cases, played the game without the facilitator being present. This indicated to us that a democratic facilitator was crucial to the development of a "multiplier" effect (i.e., campesinos taking the game to friends and family and even to neighboring communities) and to the sense of ownership of the individual's own learning process.

Identification With the Community. The evaluation observed in its own implementation of the facilitator-games model and in its implementation in UMass-impacted communities that individual characteristics of the facilitators were less important in the initial stages of the program than they were as the program went along. Likewise, they were somewhat less crucial in the purely literacy-transfer aspects of the model than in the "conscientization" aspects. The novelty of an outside program is in itself

enough to attract attention in a rural community, and usually an initially high participation. But campesinos often identify a program by the people who are in it, and they are excellent observers of other people's motivations and attitudes. We noted that in at least two UMass-impacted communities (San Pedro, Puñachísac) and in several of those impacted by the UCLA evaluation (Olón, San Andrés, Miraflores) the inability of at least one of the facilitators to identify with the community led to a tacit group rejection of the facilitators and, in our own cases, the program itself.

By "identification" we mean the ability of the facilitator to feel as an equal to the participants. It is a feeling of pride in the community whether in the community or outside it; a feeling that the village, its people, customs, and problematic situation are one's own. Identification obviously comes more easily to a person born and raised in a rural community than it does to one who comes there from outside; but the steady emigration of campesinos to urban areas is a psychological as well as economic indication that nativity is no automatic guarantee of identification with one's surroundings. We found that facilitators from outside the rural community can come to identify with it, although at an admittedly more conscious level.

This close identification with the community and one's work there is what makes a facilitator different from a formal schoolteacher. It is an outlook that strongly implies horizontal relationships between educator and educated. In practice, we have seen it help foster in program participants (in Cadeate, Dos Mangas, Barcelona, Tutupala, El Calvario, Asunción, Sinchal, and other communities) a more positive attitude towards themselves as people and as campesinos and a more positive outlook on their

communities. This identification with the community is not instantaneous, but we have found it to be a highly visible, very important characteristic in a facilitator as he/she works in the community.

Personal Growth. Facilitators are often depicted as selfless, eternally motivated individuals who are willing to sacrifice all for the good of the community. Our own observations of facilitators in different communities under a wide variety of circumstances leads us to believe that this is not only not so, but that such an attitude in a facilitator would be counterproductive to the project goal of "conscientization" of the peasant. To a certain extent, the facilitator is a model for other village residents; the project seeks to motivate people within realistic terms of daily rural life, not to become saints.

We found that those facilitators best able to transmit the ideals of this model were precisely those who themselves were strongly motivated towards personal achievement and personal fulfillment. This is usually reflected in the facilitator's outlook on his role and the way he confronts frustrations in the work. If the facilitator role is seen as an opportunity for personal growth, for testing oneself against difficult situations, for seeing the world and his/her own situation in more objective terms, we saw that the individual facilitator was a much more effective person in this kind of non-formal education. Those who were attracted to the position for reasons of economic gain, novelty, or personal prestige were usually those who most quickly became inactive and unhappy.

Training and Support. The UCLA evaluation held three intensive training sessions for different groups of field workers, in September and December of 1974 and January of 1975. Our observations of these experiences

and how each component of the training related to subsequent field effectiveness of the facilitators, plus our interviews with UMass project and CEMA trainers and facilitators, have led us to several conclusions about the kind of training and follow-up support individuals in the facilitator-games model should receive.

The training of the facilitators should attempt to cover as wide a theoretical and practical area of non-formal education as possible. The time allowed for this stage must be open-ended, dependent only on the progress made by the candidates towards the internalization of the project goals and the methods for reaching them.

The first aspect of training should be the careful, comprehensive explanation of what non-formal education is in terms of the particular model: what it hopes to generate in the learner and the society at large, and what that means for the facilitator in terms of personal relationships, physical working conditions, expected rewards, etc. How and where the program meets the needs of the participants (and where it falls short) ought to be discussed fully so as to avoid later misconceptions. We saw time and time again that facilitators in Rumipamba, Yayuliqui, Olón, San Pablo, Colonche, and other communities were unable to conceive of their role beyond the week-to-week literacy sessions, thus confusing the participants as to where the program was intended to go (if anywhere at all), and confusing themselves because their relationship to the participant group was ambiguous.

Secondly, the sessions should include thorough training in motivational techniques for working with groups. Likewise, a ready familiarity with the "learning circle" (i.e., reflection → conceptualization → practical application of learning experiences) is vital for the effective use of the

non-formal materials. The inability of several facilitators, especially in San Pedro (Guayas), to deal with adult groups and to help those groups conceptualize the learning games in terms of education and life rather than just diversion, eventually led to community boredom and desertion of the program.

We had noticed that although the UMass non-formal games serve to attract an initial interest in rural communities, it is their translation into into practical knowledge that most often acts to maintain group interest. An excellent example is in Sinchal, where the Coastal version of Hacienda has been played just this year by one of the facilitators. His experience with community groups and his ability to focus the content of the game on real-life situations (in this case, the formation of a cattle-raising cooperative) have served to increase interest in the UMass games in Sinchal, while in surrounding communities interest has all but died out.

Finally, the facilitator should receive adequate training in the use of the various non-formal game materials. He or she ought to be able to manipulate them easily, as well as expand upon them or alter them according to the needs of a particular learning group. We found the physical manipulation of the games, with the exception of Hacienda, is easily enough taught. The difficulty, however, arose when back in the community the facilitator was faced with a group which, in a few sessions, had apparently exhausted the possibilities for play. The training and the later follow-up should indicate numerous ways to use the materials; likewise, it should emphasize the multiple uses of the information within the games so that they are not "useless" just because the method of play is well known to the participants.

The game we found the most difficulty with in this regard was Number

Bingo. The easiest of the games to manipulate physically, its limitations on variety of playing modes led to participant boredom and facilitator frustration towards it as a learning tool. It was most effective in that community (Barcelona) where the facilitator used it as a stepping stone to the community's larger math needs and a point of reference in the community's interest in small commerce.

In no case, whether the facilitators had been trained by CEMA, UMass, or UCLA, did the evaluation find that any amount of preparatory training could completely sustain an individual through the problems he/she would face as facilitators in the rural villages. It is because of this that we advocate a systematic process of follow-up support for each facilitator. On the individual level, it would consist of regular site visits to assess and to assist in specific personal and professional problems that have cropped up. It would also include periodic re-training in non-formal methodologies and in the use of new game materials. For the group or sub-groups of facilitators, regular sessions would be held in order to discuss common obstacles, to exchange ideas, and to assure program progress.

The Non-formal Educational Games

The educational games developed by the UMass project have drawn more attention to this program than any other one of its several activities. The project argues that this interest is unwarranted in its single-mindedness, since the games are but a tool, one among many, and that their utility is dependent on the way in which they are used. The UCLA evaluation concurs--but only to a point.

We have found in both our own experimental implementation of the facilitator-games model and in our impact study of eight UMass facilitator

communities that the games are the most effective non-formal tool developed by the UMass project. If used skillfully, they are both educational and motivating for the peasant. Further, we found that their most effective utilization came within the facilitator-games non-formal model; more formal learning situations (i.e., Adult Education centers) reduce the flexibility of the games and their over-all importance in the individual's learning experience, while less formal (i.e., one-day introduction to communities or organizations) does not provide the depth of either conceptualization or constant use necessary for the realization of the UMass project's objectives.

A similar facilitator-games non-formal model implemented outside Ecuador will most assuredly develop games that are compatible with the country in which they are used. Some might be specific games used in Ecuador; others might be subtle modifications of UMass games; others, hopefully, will be totally original and go beyond the games with which we have experimented in Ecuador.

The UMass project outlined a number of intended characteristics of their games (see UMass Technical Notes 1, 3, 4, 6, 7) designed to meet the learning and "consciousness" objectives of each. The evaluation team has ordered these characteristics into three areas: 1. physical form, 2. motivational and attitudinal characteristics, and 3. learning attributes. The three areas were then examined in our field experimentation in order to identify those aspects of each characteristic area which were most important for the realization under actual rural conditions of the games' objectives.

We found that in order to be most effective in meeting the objectives of developing fundamental literacy and numerical skills and developing

critical consciousness among rural villagers in conditions similar to those of Ecuadorian peasants, non-formal educational games should have a number of characteristics which will be discussed briefly below. (A more detailed discussion of the physical and educational characteristics can be found in Evaluation Question #5. The motivational characteristics are discussed in Question #8.)

1. Physical Format

a) The physical aspects of the game should reflect rural reality. We found this important for catching the initial interest of rural participants and, more importantly, for making clearer the link between the game and its utility to the peasant's immediate needs.

b) The games should be easily manageable with few or no directions. This allows the average peasant to utilize the materials effectively without the need for a permanent teacher.

c) The games should be easily reproducible in the communities. A sense of ownership or control over one's own education appears to be an important prerequisite to the development of "critical consciousness." By allowing for local development of educational ideas and materials, that sense of control could be at least partially realized.

2. Motivational and Attitudinal Characteristics

a) The games should spark the interest of the rural people. We observed that the acceptance of a non-formal program is as dependent on its format as it is on the strictly educational value it may have. Games that arouse the curiosity of the villager, promising learning in a relaxed, enjoyable context, have been one of the key factors in the successful implementation of the facilitator-games model in all of the rural communities where it has been tried.

b) The games should be able to maintain the initial interest shown in them. If the games become dull or "stale" after only a few sessions, or if their learning possibilities are quickly exhausted, participants are much less motivated to attend. Neither the short-term learning objectives nor the long-range "conscientization" objectives will be given sufficient time in which to be realized.

c) The games should increase self-confidence and self-esteem. Both are vital to this kind of non-formal education which is supposed to lead towards locally-directed community development.

d) The games should engage the peasant as an active participant. We have seen that participation in one's education, rather than simply receiving it, encourages the peasant to reflect upon it more seriously, and makes him more likely to apply its lessons practically.

e) The game should act to integrate the group and lead towards a general disinhibition (i.e., rapport and trust) among the individual participants. The facilitator-games model's presupposition of education leading to community development requires the formation, through the educational process itself, of an open, confident group of people who can work together for change.

f) The games should stimulate cooperation rather than competition. We observed that the facilitator alone cannot impart the concept of cooperation and its importance to development. Rather, the activity of the game(s), the experience of working together during the sessions, was much more effective in getting people to see the benefits of cooperative action.

3. Learning Attributes

a) The games should be designed towards meeting the educational needs of the target group. Games which are designed with broad, general rural groups in mind tend to overlook the variety of educational needs from one geographical area to another. Participants find them generally less appealing and less useful.

b) The games should offer the possibility of leading to "reflection." It is the linking of immediate educational experience to daily situations, through the reflective process, that allows the development of a critical consciousness in the individual.

c) The games should develop communications skills. Since this type of education is action-oriented, it is important that the peasant overcome his traditional inarticulation towards his neighbors and, especially, towards authority figures with (or against) whom he will be working in the development of the community.

In summary, then, the UCLA evaluation finds that the facilitator non-formal games model used by the University of Massachusetts' Non-formal Education Project can be replicated in other countries, under a certain set of mutually dependent conditions. These conditions are:

a) an official institutional setting that provides reliable financial support to such a program and at the same time allows the model to function as freely as possible.

b) an impact area (i.e., rural communities) that has been carefully studied prior to the intervention of the non-formal model, with final selection made on the basis of criteria reflecting the congruence of community needs and program objectives.

c) the selection of individual facilitators (i.e., non-formal education field workers) whose personal characteristics and motivations lend themselves to the rigorous demands of this kind of rural education model, and their subsequent training and supervision in all aspects, theoretical and practical, of the program.

d) the use of non-formal educational games that are appealing, that impart functional skills, that promote individual and group critical awareness, and that motivate their users to actions designed to better their own lives and their own communities along lines that are set by the participants.

## QUESTION 13: WHAT IS NEEDED TO DEVELOP EFFECTIVE NON-FORMAL EDUCATION MATERIALS AND PROGRAMS IN COUNTRIES SIMILAR TO ECUADOR?

This question is a subtle restatement of Question 12. We have preferred to respond to the concerns of both questions by the ample discussion in Question 12 above.